# NVR-101

# Network Video Recorder

## User Manual

## Version: 1.0.0

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## FOREWORD

Thank you for choosing QNAP products! This user manual provides detailed instructions of using the product. Please read carefully and start to enjoy the powerful functions of the product!

## NOTE

- All features, functionality, and other product specifications are subject to change without prior notice or obligation.
- All brands and products names referred to are trademarks of their respective holders.

## LIMITED WARRANTY

In no event shall the liability of QNAP Systems, Inc. (QNAP) exceed the price paid for the product from direct, indirect, special, incidental, or consequential software, or its documentation. QNAP makes no warranty or representation, expressed, implied, or statutory, with respect to its products or the contents or use of this documentation and all accompanying software, and specifically disclaims its quality, performance, merchantability, or fitness for any particular purpose. QNAP reserves the right to revise or update its products, software, or documentation without obligation to notify any individual or entity.

**CAUTION**

1. Back up your system periodically to avoid any potential data loss. QNAP disclaims any responsibility of all sorts of data loss or recovery.
2. Should you return any components of the product package for refund or maintenance, make sure they are carefully packed for shipping. Any form of damages due to improper packaging will not be compensated.

**Important Notice**

- Reading instruction
  Please read the safety warnings and user manual carefully before using this product.
- Power supply
  This product can only be used with the power supply provided by the manufacturer.
- Service
  Please contact qualified technicians for any technical enquires. Do not repair this product by yourself to avoid any voltage danger and other risks caused by opening this product cover.
- Warning
  To avoid fire or electric shock, do not use this product in rain or humid environment. Do not place any objects on this product.

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# Safety Warning

1. This product can operate normally in the temperature of 0ºC ~35ºC and relative humidity of 0%~85%. Please make sure the environment is well-ventilated.
2. The power cord and devices connected to this product must provide correct supply voltage.
3. Do not place this product in direct sunlight or near chemicals. Make sure the temperature and humidity of the environment are in optimized level.
4. Unplug the power cord and all connected cables before cleaning. Wipe this product with a wet towel. Do not use chemical or aerosol to clean this product.
5. Do not place any objects on this product for the server's normal operation and to avoid overheat.
6. Do not place this product near any liquid.
7. Do not place this product on any uneven surface to avoid falling off and damage.
8. Make sure the voltage is correct in your location when using this product. If you are not sure about the voltage, please contact the distributor or the local power supply company.
9. Do not place any object on the power cord.
10. Do not attempt to repair this product in any occasions. Improper disassembly of the product may expose you to electric shock or other risks. For any enquiries, please contact the distributor.

# Chapter 1 Introduction

## 1.1 Product Overview

Thank you for choosing NVR-101 Network Video Recorder (hereafter referred to as NVR). NVR is a dedicated network storage device for storing the recordings of network cameras actively. It integrates the advanced recording functions of popular network cameras into a user-friendly web UI. NVR can record video actively from various IP cameras located in local or remote sites instead of running complex software on a personal computer. It also supports real-time monitoring everywhere via the web.

## 1.2 Features

NVR features include:

**Best Hardware Design**

1. Embedded system with low power consumption.
2. Support 1 x high-speed SATA +1 x eSATA hard drives.
3. Storage capacity up to 2 TB for long time recording.

**Powerful Surveillance Features**

1. High quality recordings in Motion-JPEG/ MPEG-4 (depends on supported camera).
2. All-in-one recording functions:
   - Continuous/ Manual/ Scheduled recording
   - Alarm recording (by motion detected or sensor triggered)
   - Alarm Recording Schedule
3. Various live video monitoring:
   - Single/ Quad/ Sequential mode
   - Exclusive Picture-in-Picture Display

**Picture-in-Picture**

4. Smart control of PTZ (Pan, Tilt, Zoom) & speed dome camera by direct clicking on video screen.
5. Support monitoring preset position control.
6. E-map function for easy preview of the camera location.
7. Real-time e-mail notification to user upon alert events.
8. Easy playback searching by date & time.
9. Support video snapshot.
10. Powerful pre-alarm and post-alarm recording.
11. Powerful host access control, specify the connections to be allowed and denied to access NVR.
12. Support audio recording function (optional)

**High Performance**

1. Video recording frame rate*:
   - Up to 120 frames at QVGA (320x240) or CIF (352x240 in NTSC, 352x288 in PAL)
   - Up to 40 frames at VGA (640x480)

   * Real performance may vary according to the camera model and installed environment
2. Built-in high speed Gigabit LAN interface

**High Reliability and Smart Features**

1. Support extra secure data protection by RAID 1 (Mirroring) technology.
2. Support RAID 0, JBOD (Just a Bunch of Disks/ Linear) disk volume configuration.
3. Intelligent automatic system startup when power resumes after power outage.
4. Support UPS (Uninterruptible Power Supply) system for 24x7 services.
5. Convenient video backup to external USB storage by One Touch auto video backup button.

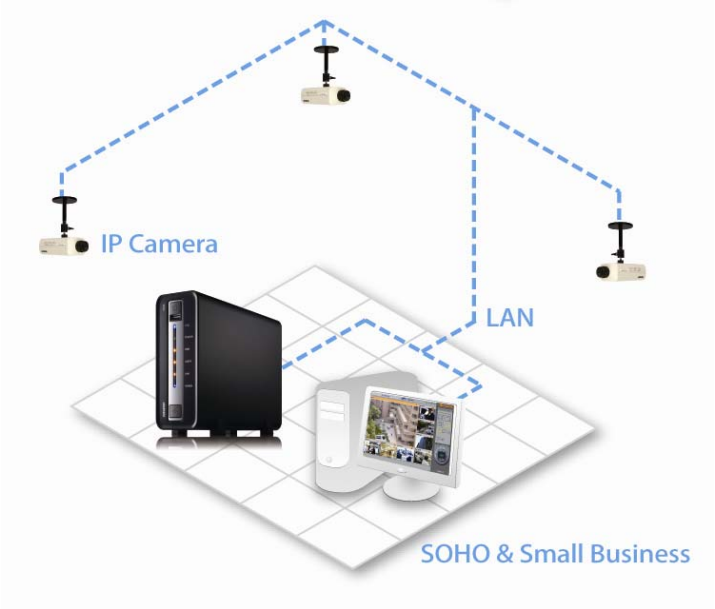
**Powerful Network Services**

1. Powerful authority management: the right to monitor and playback each camera can be separately defined for each individual user.
2. Built-in NTP server: date and time of the network cameras are synchronized with this NVR.
3. The world's only NVR with NAS feature embedded.
   - Network Neighborhood (SMB/CIFS)
   - FTP server
   - Web File Management (HTTP)

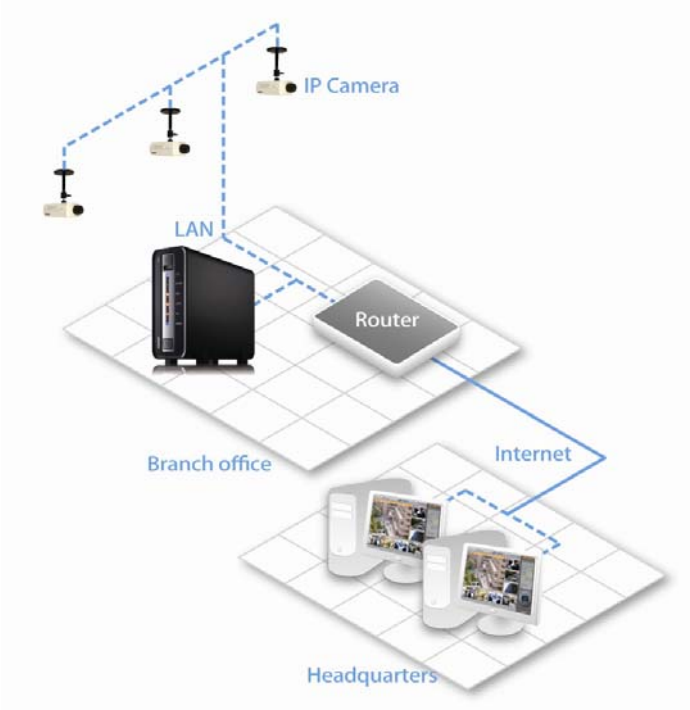
For more information of the designs and specifications, please refer to Appendix D.

## 1.3 System Architecture

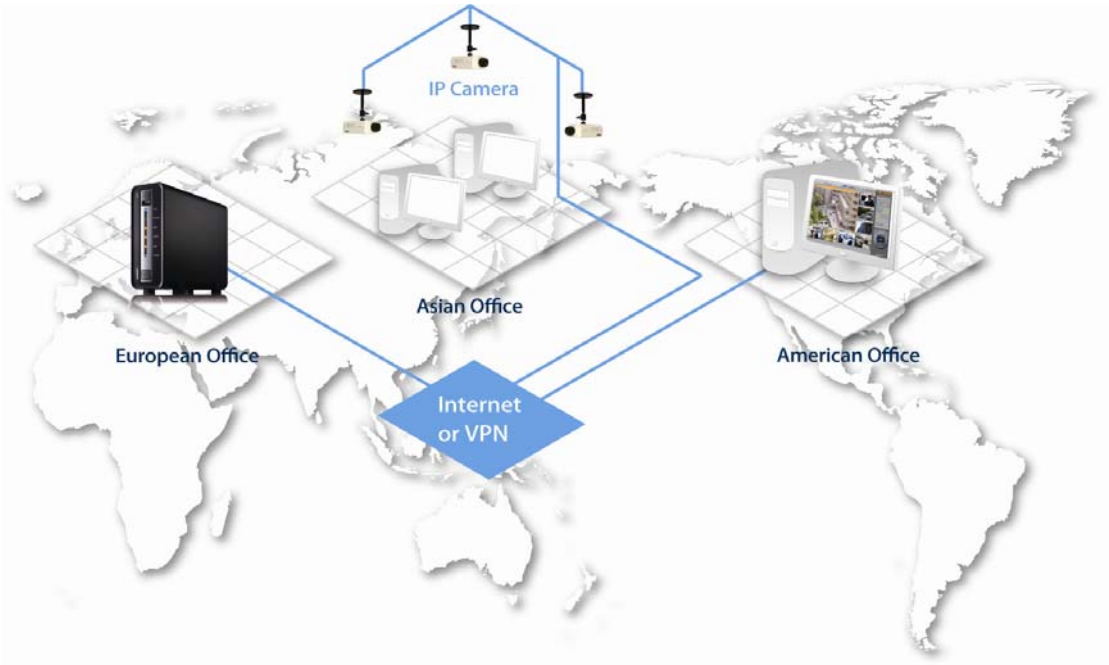
The following illustrations show how NVR can be applied in different network environment.




Network Surveillance Installation for SOHO and SMB




Remote Monitoring and Playback over the Internet




Central Surveillance Deployment for International Enterprise

## 1.4 Check Package Contents

Please check that your NVR package contains all the following items:

✓ Network Video Recorder

✓ Adaptor

✓ Power Cord

✓ CD-ROM (User manual & utility inclusive)

✓ Quick Installation Guide

✓ Screws

✓ Ethernet Cable

## 1.5 Hardware Illustration

1. One Touch Auto Video Backup Button
2. USB 2.0 Port
3. LED Indicators
4. Power Button
5. USB 2.0 Ports
6. eSATA Port
7. Giga LAN Port
8. Password & Network Settings Reset Button
9. Power Connector
10. K-lock Security Slot

# Chapter 2 Install NVR

**Pre-installation Notice**

Before installing NVR, please make sure the following items are ready:

- Network connection devices
- Network cameras are configured
- The computer for configuring NVR and connection
- 1 hard disk
- 1 Philips screwdriver

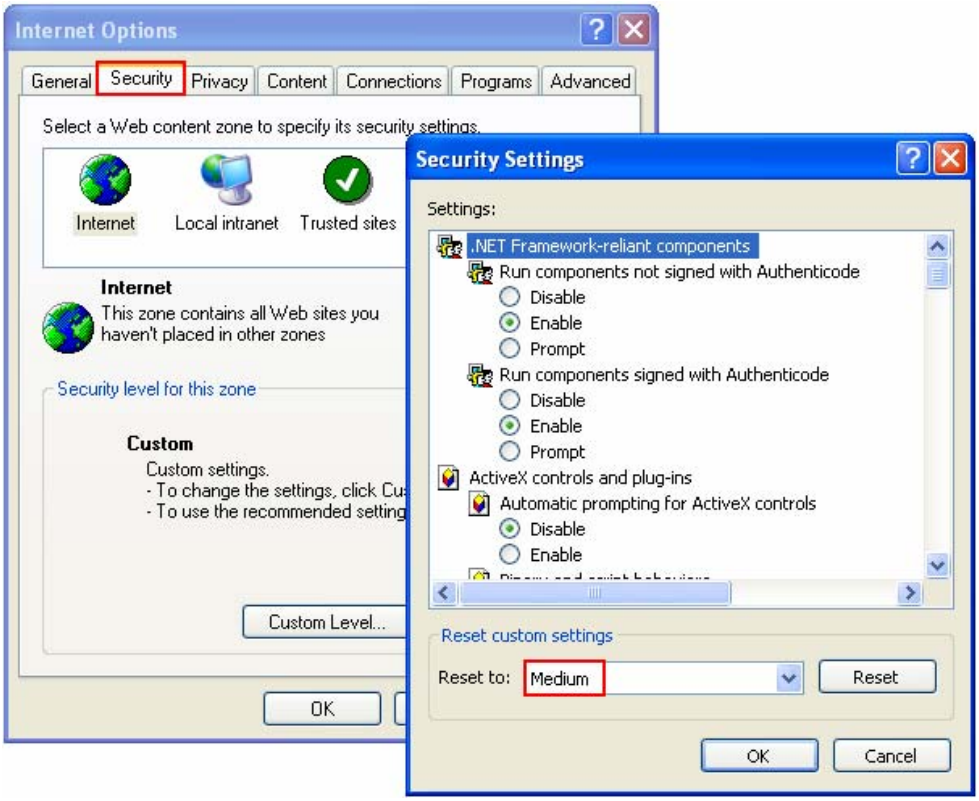
**Personal Computer Requirements**

For better system performance, your computer should at least fulfill the following requirements:

- CPU: Intel® Pentium 4, 2 GHz or above
- Operation System: Microsoft® Windows XP / Vista
- Memory: 512 MB or above
- Network Port: 100Mbps Ethernet port or above
- Web Browser: Microsoft® Internet Explorer 6.0 or above
- CD-ROM: Readable CD-ROM
- Recommended resolution: 1024 X 768 pixels or above

**Security Setting of Web Browser**

Please make sure the security level of the IE browser in Internet Options is set to Medium or lower.



Before you start to use NVR, please install the hardware and configure the system.

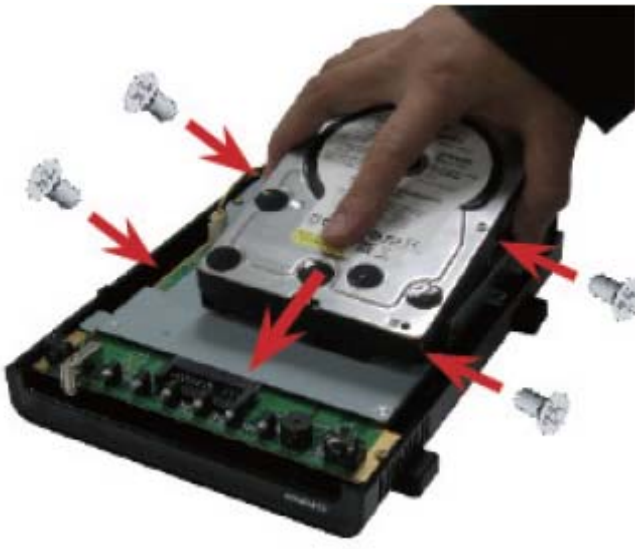
## 2.1 Install Hardware

Please follow the steps below to install the hardware:

- Install the hard disk.
- Connect the network cable and power cord.
- Turn on the server.

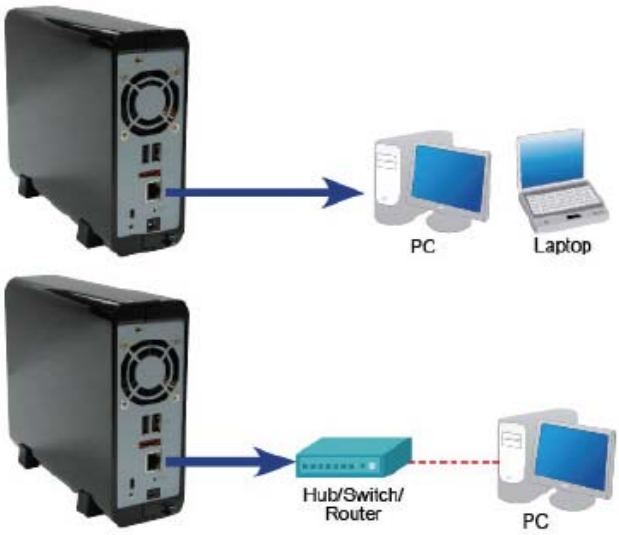
1. Pull out the front case of NVR as shown below.

2. Install a hard disk in the drive plate. Make sure the disk holes of the disk match the holes of drive plate. Lock the disk with the provided flathead screws.



3. After installing the disk, cover NVR with the front case and fasten the round head screws.

4. Connect the network cable.



5. Connect the power cord and plug in the power cord to the socket.

6. Turn on the NVR. The server will beep once. Please wait for a while until the server beeps another time. The server has started up successfully.

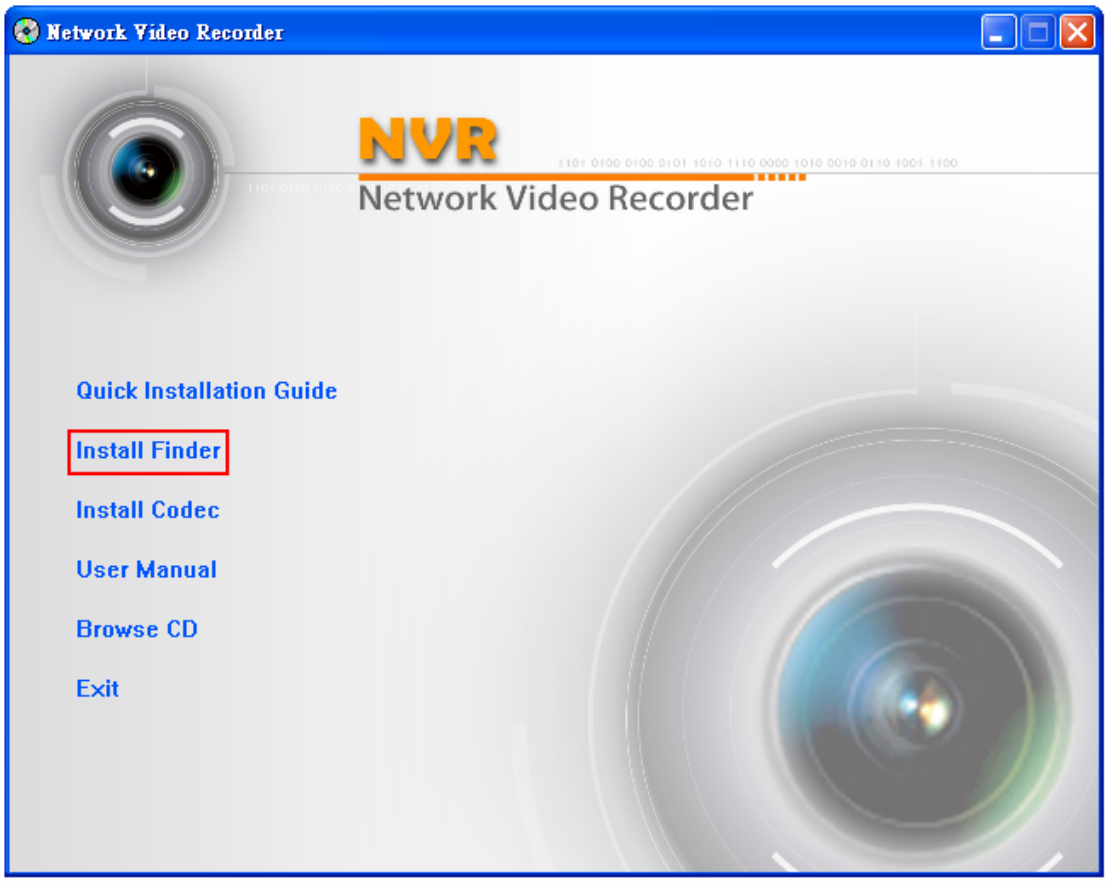
## 2.2 System Configuration

After server is turn on and ready, please insert the product CD to the CD-ROM drive of your computer and follow the steps below to complete system configuration:

- Install Finder to search for NVR in the network
- Configure NVR by Finder
- Connect to the configured NVR and install ActiveX

After that, you can check if the server is working properly by the web interface.

1. Install Finder
   Execute the product CD, the following menu will be shown. Select "**Install Finder**".



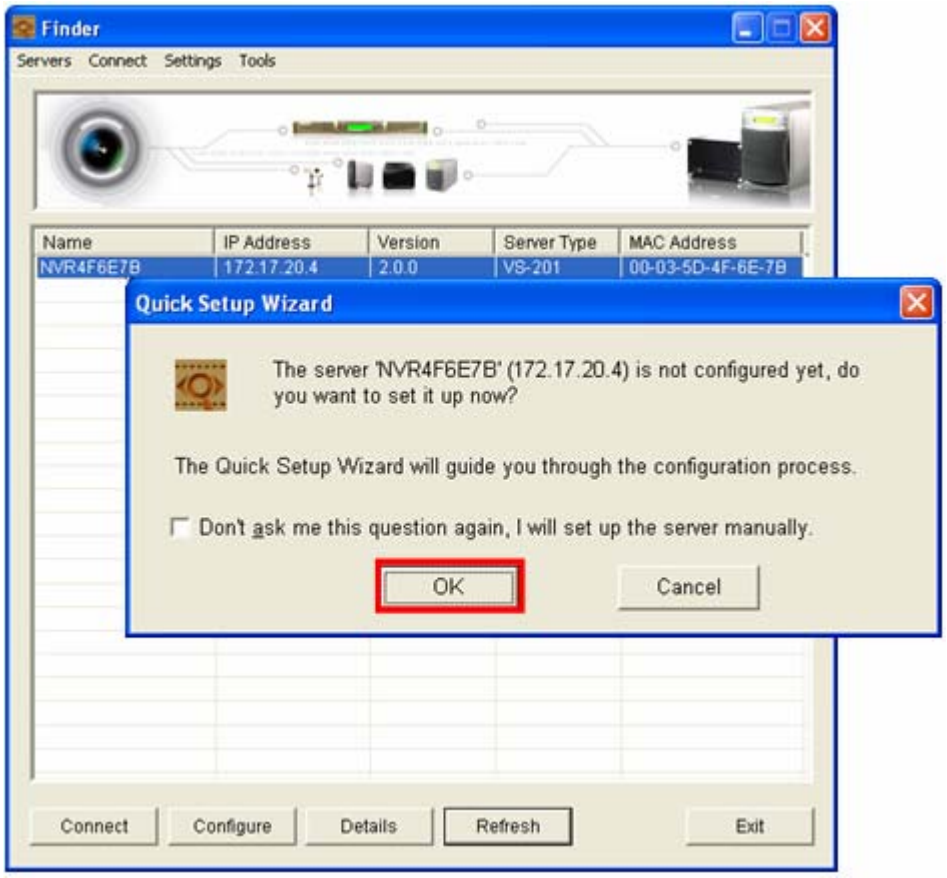
Follow screen instructions to install Finder. Finder will run automatically then. If you are using Windows XP SP2, the following screen will be shown. Please select "**Unblock**".

Finder
Servers Connect Settings Tools
Name
Windows Security Alert
To help protect your computer, Windows Firewall has blocked some features of this program.
Do you want to keep blocking this program?
Name: Finder
Publisher: Unknown
Keep Blocking
Unblock
Ask Me Later
Windows Firewall has blocked this program from accepting connections from the Internet or a network. If you recognize the program or trust the publisher, you can unblock it. When should I unblock a program?
Connect
Configure
Details
Refresh
Exit

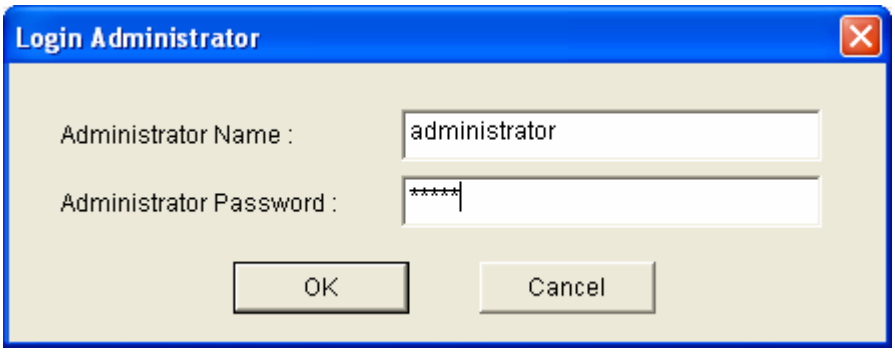
2. Execute Quick Setup

Finder will detect the NVR in the network and ask if you want to perform quick setup. Click **OK** to continue.

**Note:** If NVR is not found, click **Refresh** to try again.


Finder
Servers Connect Settings Tools
Name IP Address Version Server Type MAC Address
NVR4F6E7B 172.17.20.4 2.0.0 VS-201 00-03-5D-4F-6E-7B
Quick Setup Wizard
The server 'NVR4F6E7B' (172.17.20.4) is not configured yet, do you want to set it up now?
The Quick Setup Wizard will guide you through the configuration process.
Don't ask me this question again, I will set up the server manually.
OK
Cancel
Connect
Configure
Details
Refresh
Exit

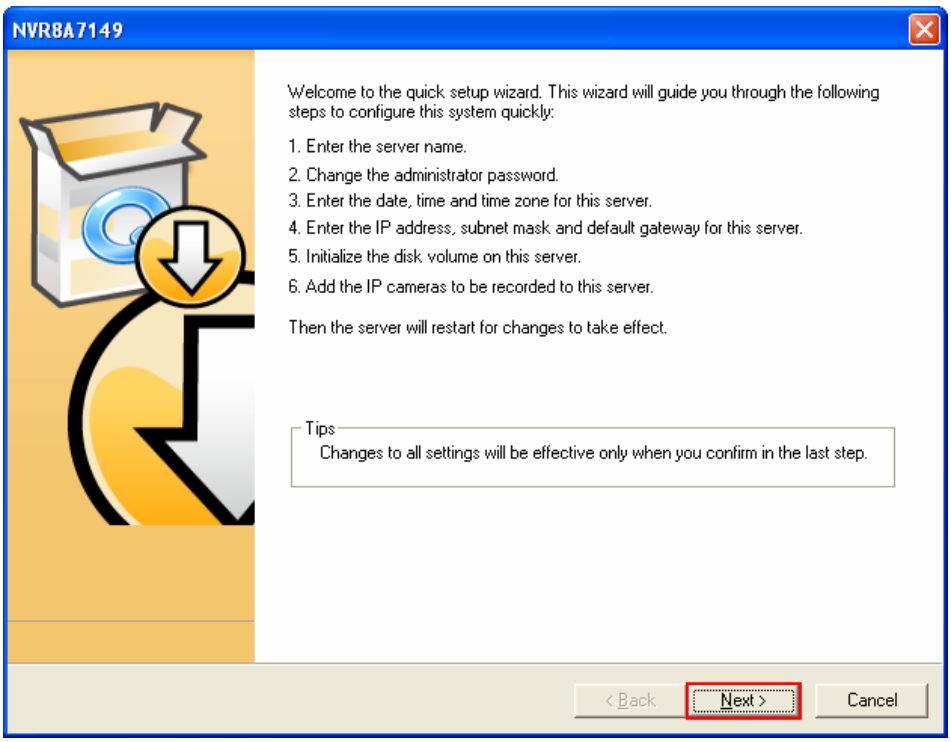
You must enter the administrator name and password to perform quick setup.




The default administrator name and password are as below:

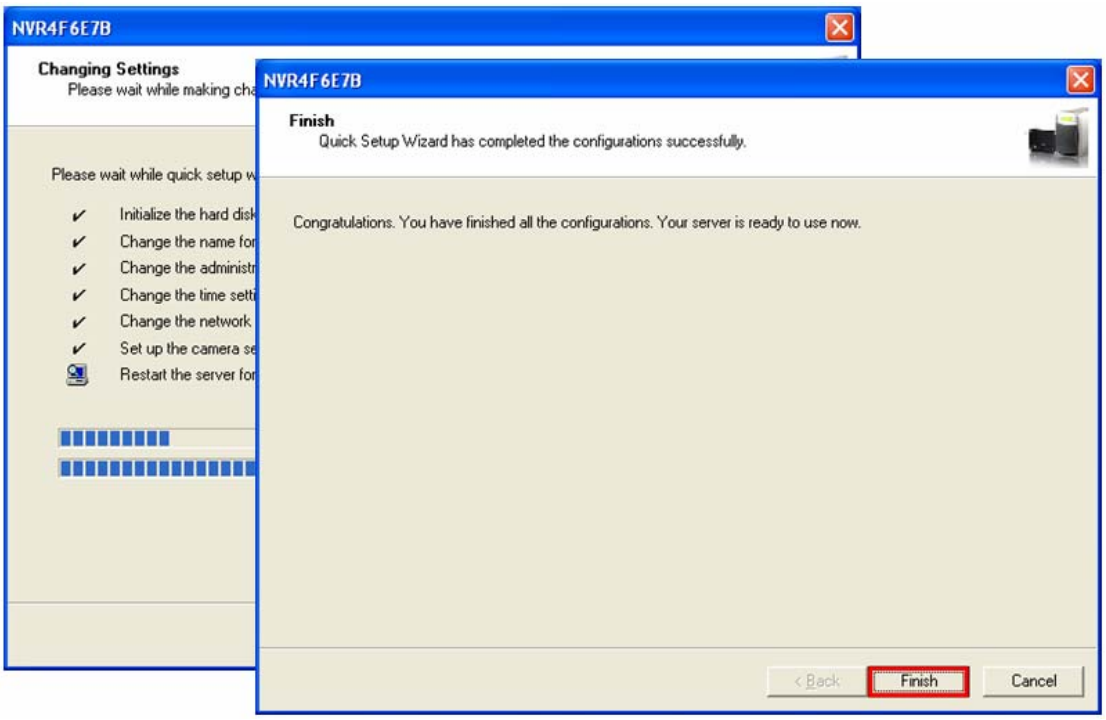
| |
|---|
| Use name: **administrator**<br>Password: **admin** |

The first page of the Quick Setup Wizard will be shown. Click **Next** to continue and complete the configuration.


NVR8A7149
Welcome to the quick setup wizard. This wizard will guide you through the following steps to configure this system quickly:
1. Enter the server name.
2. Change the administrator password.
3. Enter the date, time and time zone for this server.
4. Enter the IP address, subnet mask and default gateway for this server.
5. Initialize the disk volume on this server.
6. Add the IP cameras to be recorded to this server.
Then the server will restart for changes to take effect.
Tips
Changes to all settings will be effective only when you confirm in the last step.
< Back
Next >
Cancel

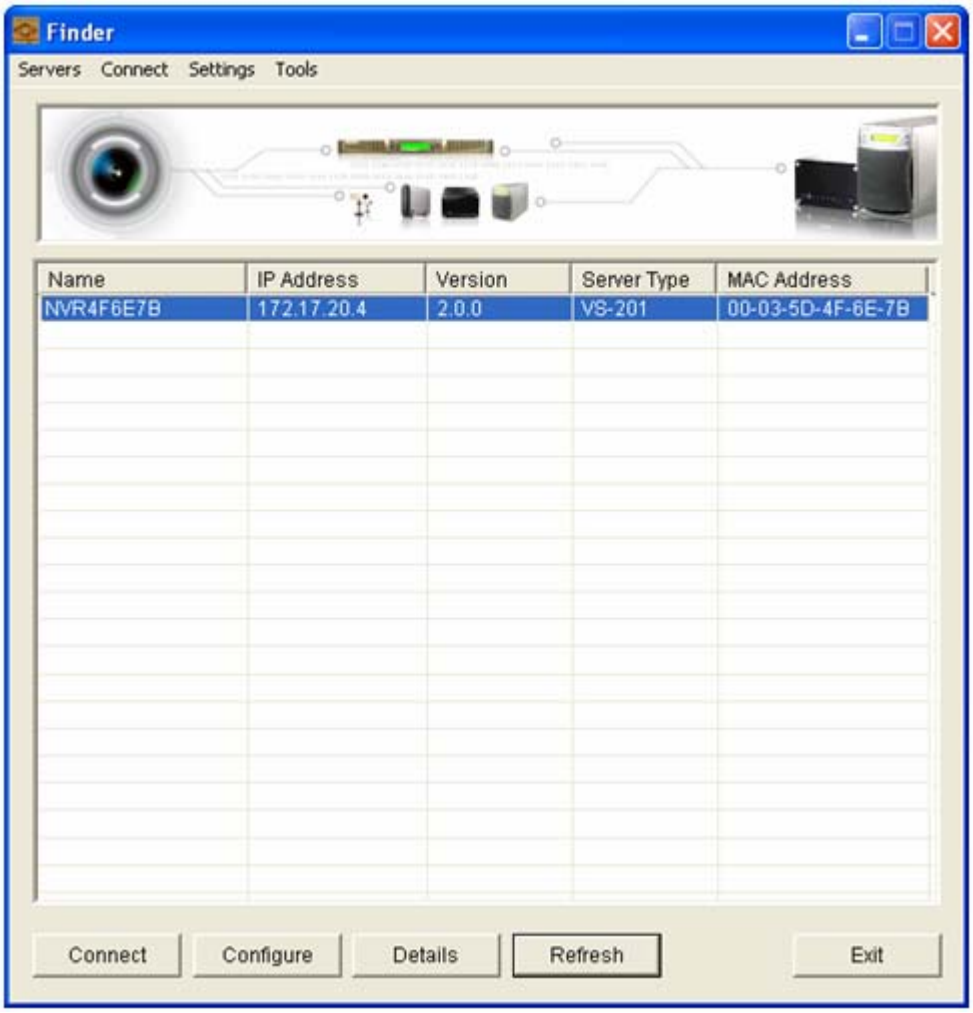
**Note:** Please make sure all the network cameras are configured and connected to the network.

NVR will restart after changing the settings.  When quick setup is completed, click **Finish** to continue.

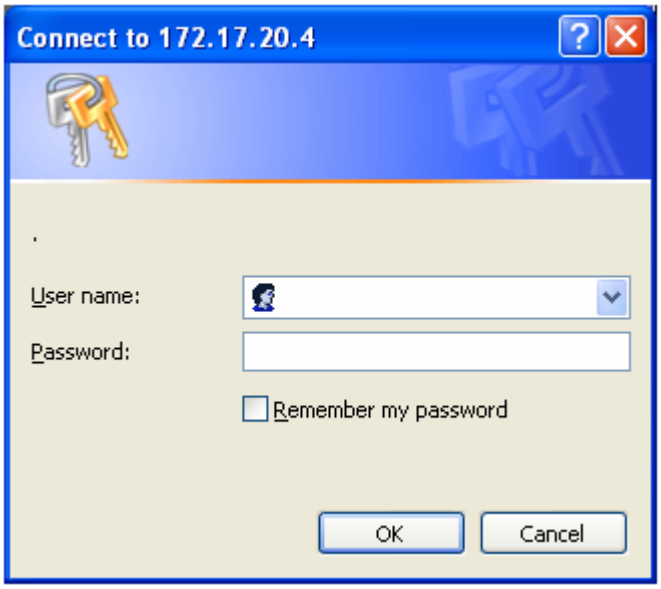


3. Connect to NVR

After finishing quick setup, you will return to the main screen of Finder.



Select a NVR on the menu and double click the server name to enter the monitoring screen.

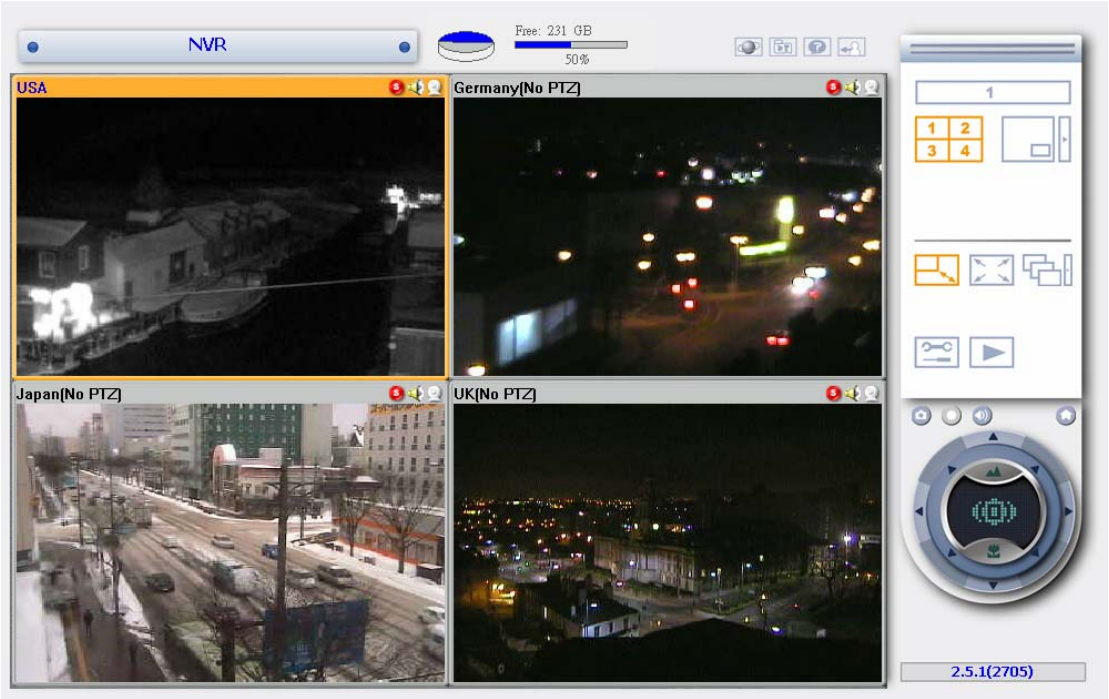



You must enter a correct user name and password to access the server. Then click **OK**.

The first time you connect to the server, please install ActiveX. Follow the instruction to install ActiveX.

NVR4F6E7B - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Search
Favorites
Address
http://172.17.20.4/cgi-bin/enter.cgi
This site might require the following ActiveX control: 'VSMonitor.cab' from 'QNAP Systems, Inc.'. Click here to install...

When the live video is displayed and the recording indicator is shown, you have successfully installed NVR.



# Chapter 3 Start to Use NVR

When you have installed NVR and other hardware, and connected it to the network, you can use the browser in your PC to connect to NVR. It is recommended to use Microsoft Internet Explorer 6.0 for browsing.

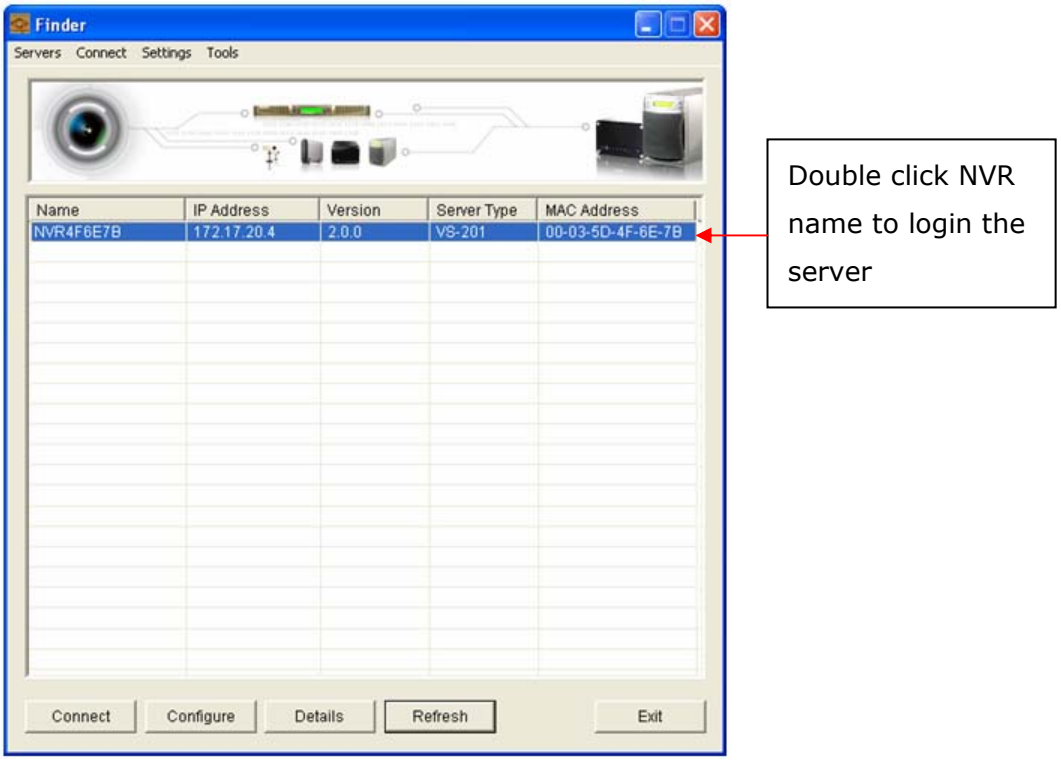
**Important Notice:**

Before you start to use NVR, you must install a hard disk or two in NVR, finish disk volume configuration and format the hard disk(s). Otherwise, the system may not function properly. Please refer to Chapter 5.4.1 for disk volume configuration details.

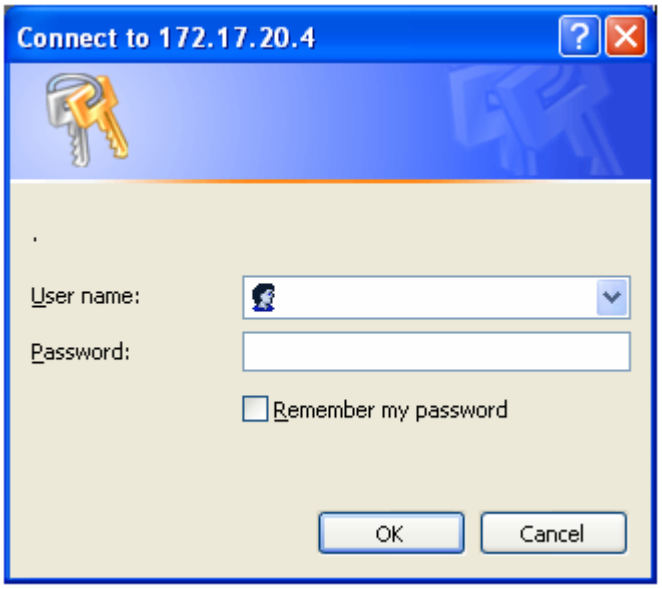
## 3.1 Connect to NVR

Follow the steps below to connect to NVR monitoring page:

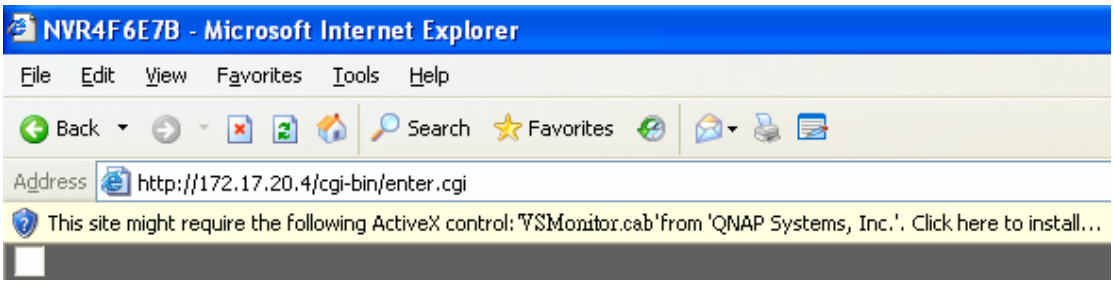
1. Open an IE browser and enter the IP address of NVR. Or execute the **Finder** shortcut on the Desktop. When the following screen is shown, double click the name of NVR.


Finder
Servers Connect Settings Tools
Name IP Address Version Server Type MAC Address
NVR4F6E7B 172.17.20.4 2.0.0 VS-201 00-03-5D-4F-6E-7B
Connect Configure Details Refresh Exit
Double click NVR name to login the server

2. Enter the user name and password to login NVR.
   Default User name: **administrator**
   Default Password: **admin**

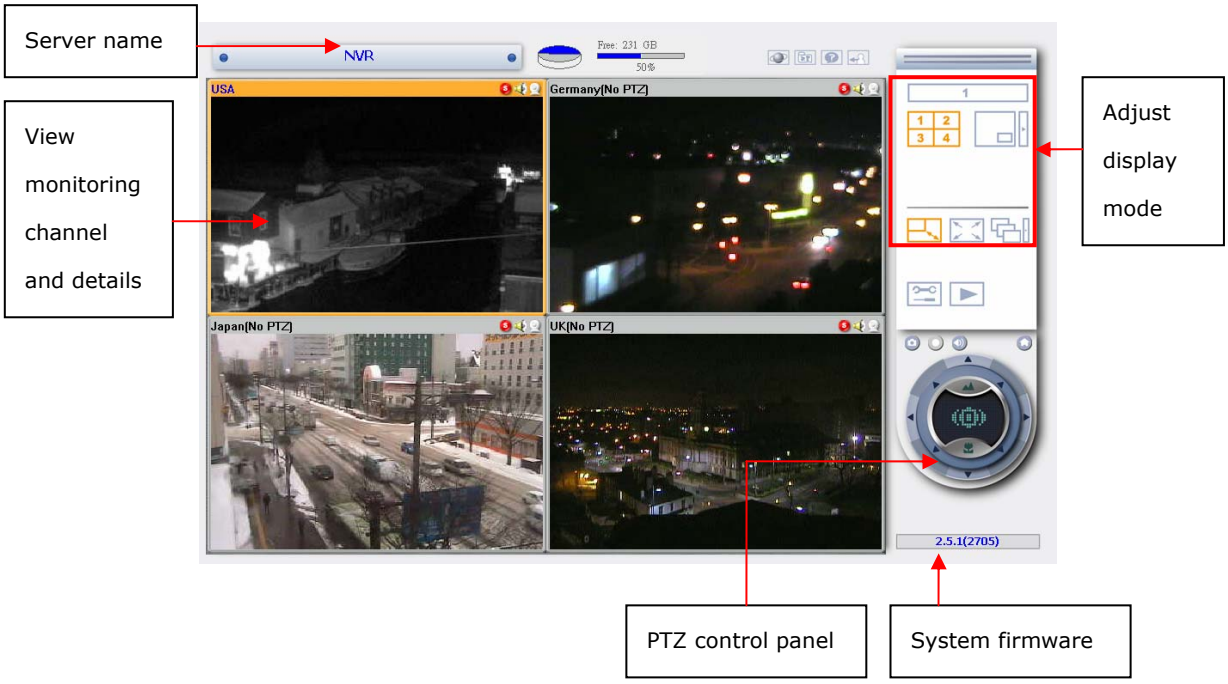


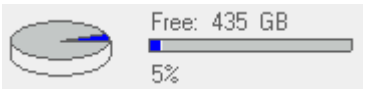

3. To view NVR live video, you must install the NVR ActiveX control first. Follow browser's instructions to install it.


NVR4F6E7B - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://172.17.20.4/cgi-bin/enter.cgi
This site might require the following ActiveX control: 'VSMonitor.cab' from 'QNAP Systems, Inc.'. Click here to install...

## 3.2 Monitoring Page

When you have successfully logged in NVR, the monitoring page will be shown. Select the display language. You can view the live video from cameras, view E-map and storage status, adjust display mode, enable manual recording, take snapshot etc.




| | |
|---|---|
|   | **Recording storage status:** Display storage percentage and free space. |
| | **Select language:** Select the display language. |
| | **E-map:** To display the location of the camera. The e-map can be changed in system configuration page. |
| | **Help:** View on-line help of using NVR. |
| | **Logout:** Logout monitoring page. |
| | **Enter system configuration page:** Login system configuration page which can only be accessed by administrator. |

| | |
|---|---|
| | **Playback:**<br>Enter recording playback page. The administrator can assign user's right to access this page. |
| | **Snapshot:**<br>Take a snapshot on the selected camera. When the picture is shown, right click the picture to save it to the computer. |
| | **Manual recording:**<br>Enable or disable manual recording on the selected camera. Administrator can enable or disable this option in system configuration page. |
| | **(Option) Audio:**<br>Turn on/ off audio support for monitoring page. |
| | **Login network camera homepage:**<br>Select a camera and click this button to go to the homepage of the selected camera. |
| | **Select PTZ camera preset positions:**<br>You can view different preset positions of the camera by clicking the number buttons. To configure the preset positions of the camera, please refer to the user manual of the camera. |

**Note:**

1. Starting and stopping manual recording will not influent scheduled or alarm recording. They are independent processes.
2. The default path for storing snapshots is the "Snapshot" folder under My Documents in your computer.
3. If the snapshot time is inconsistent with the actual time that the snapshot is taken, it is caused by the network environment but not a system error.

### 3.2.1 Live Video Window

If the camera is properly configured, you can see the current video from the remote network camera within live video window.
If your camera supports pan and tilt functions, you can click on the video window directly to adjust the viewing angle. If the camera supports zooming, you can use a wheel mouse to adjust the zooming distance by scrolling the wheel. These operations depend on the camera model. Please refer to the user manual of your camera for further information.

**Camera Status**

The camera status is indicated by the icons shown below:

| Icon | Camera Status |
|---|---|
| | Scheduled or continuous recording in process |
| | This camera support audio function |
| | This camera support PT function |
| | Manual recording is enabled |
| | Alarm input 1 of the camera is triggered and recording is in process |
| | Alarm input 2 of the camera is triggered and recording is in process |
| | Recording for motion detection is in process |

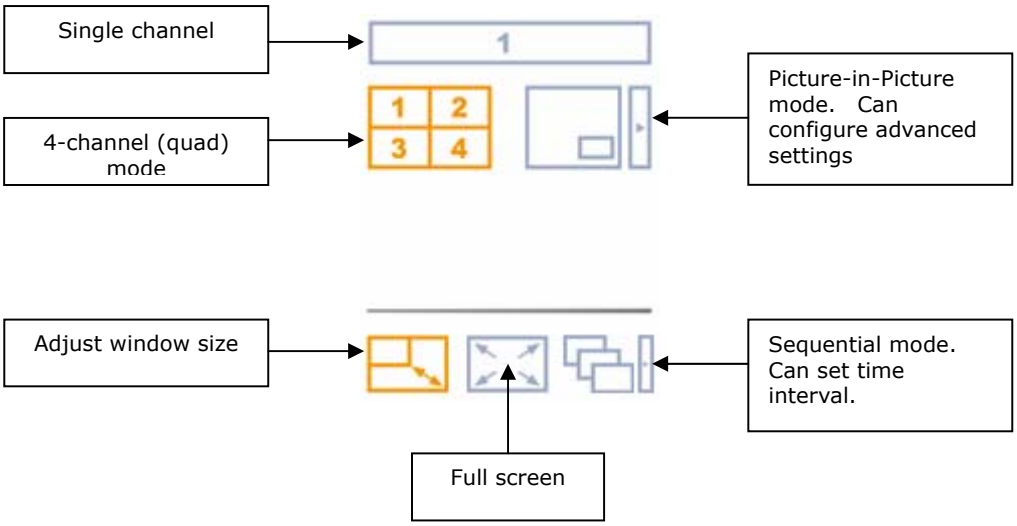
**Connection Message**

When NVR fails to display a camera, a message will be shown within the live video window. The following messages may be shown:

- Connecting
  If the network camera is located in remote network or Internet, it may take some time to establish connection to the camera.
- Disconnected
  Cannot connect to the network camera. Please check the network connection of your computer and the availability of the network camera. If the camera is in Internet, the port for the camera must be open on your router or gateway.
- No Permission
  This message is shown when a user without access right to view this camera. Please logout the system and login as a user with access right to the camera.
- Server Error
  Please check the camera settings or try to update camera's firmware to newer version. Contact technical support if the problem is not fixed after checking.

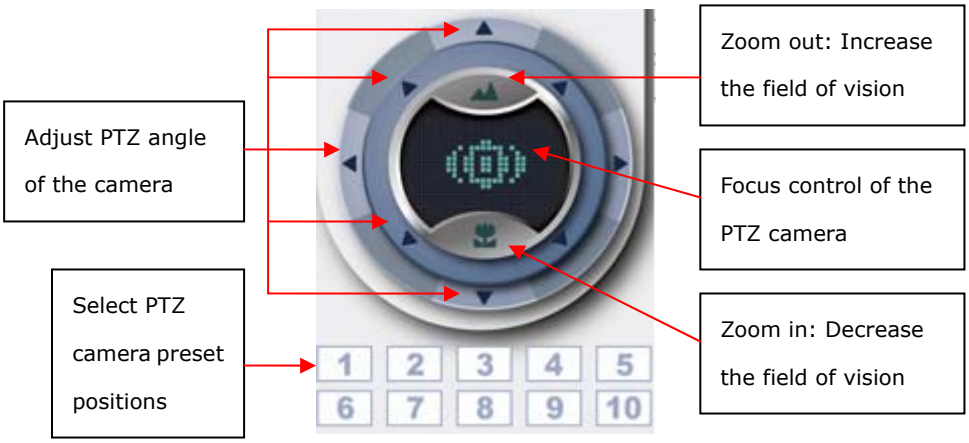
### 3.2.2 Display Mode

By changing display mode, you can easily adjust the visual effects when viewing video of single or multiple cameras.




### 3.2.3 PTZ Camera Control Panel

**PTZ** stands for Pan/ Tilt/ Zoom camera control. You can do PTZ control on the selected camera. These functions are available depending on the camera model; please refer to the user manual of the camera.

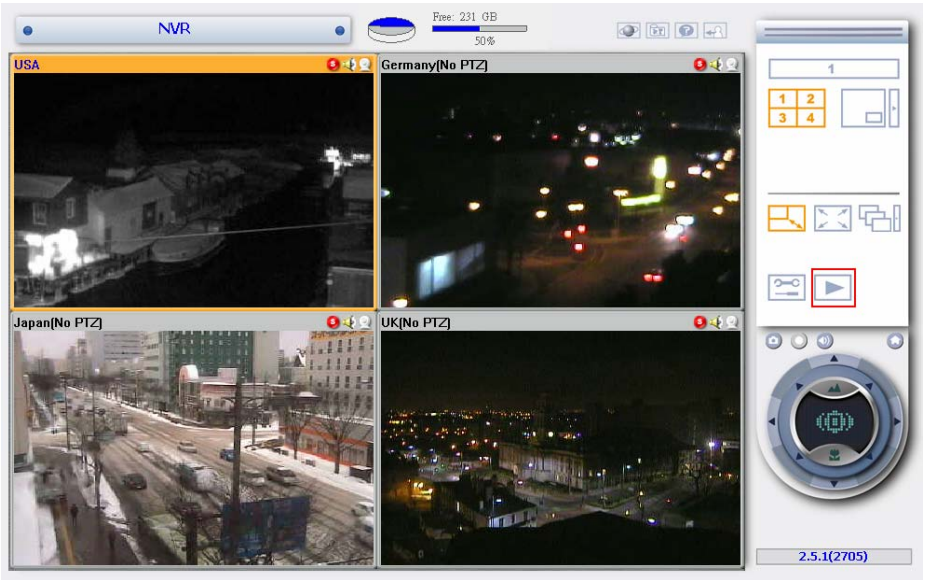


# Chapter 4 Playback Video Files

To playback recording video of NVR is very easy to use. NVR provides an intuitive web interface to search and play recording files, no extra software installation is necessary. In addition, you can use network file services to access the recorded video files directly.

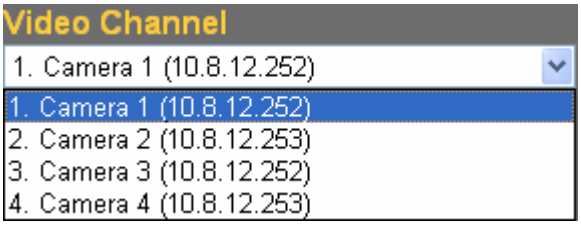
## 4.1 Use Web Playback Interface

1. Click the playback button on the monitoring page.

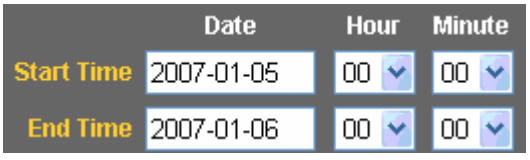


2. The following page will be shown. To return to the monitoring page, click . To enter system administration page, click .

3. Select a network camera.

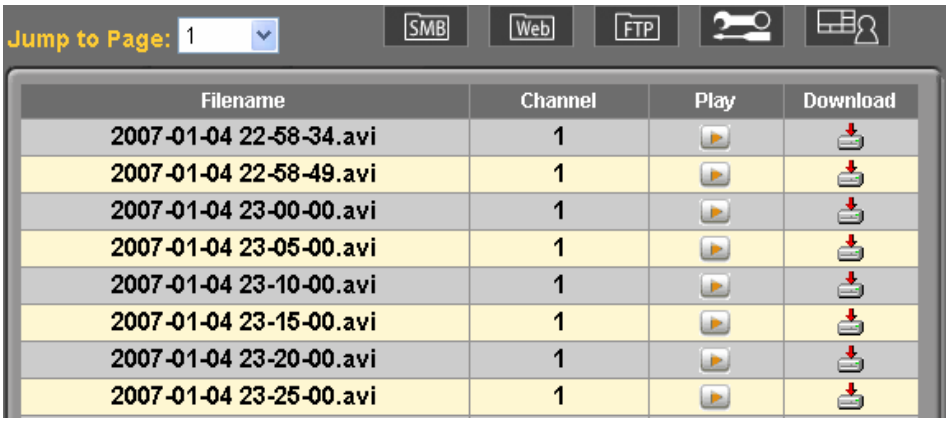



4. Click on the date in Start Time section and select the start date and time to search for video files. Then select the end date and time.




5. Click the search button .

6. A list of search result will appear on the right. Click to play the video file or to download the file to your PC. If there is more than one page of search result, you can select a page number on **Jump to Page** section to go to that page.




**Note:** After clicking , the system will function according to your default setting in web browser. If your default setting is to play the files right away, the browser will activate the default video playing software to play the files. If you cannot download the file directly, right click and select to save the file to your computer.

7. When you select to play a file on the list, the video file will be played in the player on the left.

**Tip:** Double click on the player window to switch to full screen.

8. When you click , the video file will be downloaded to your PC automatically.

**Note:** If you do not have access authority of the cameras, you will not be able to get the recording file list and play the video recordings of the cameras. Please refer to Chapter 5.5 for access right configuration.

## 4.2 Access Recordings via Network File Service

NVR provides the following three network file services for users to access the recorded video files on NVR:

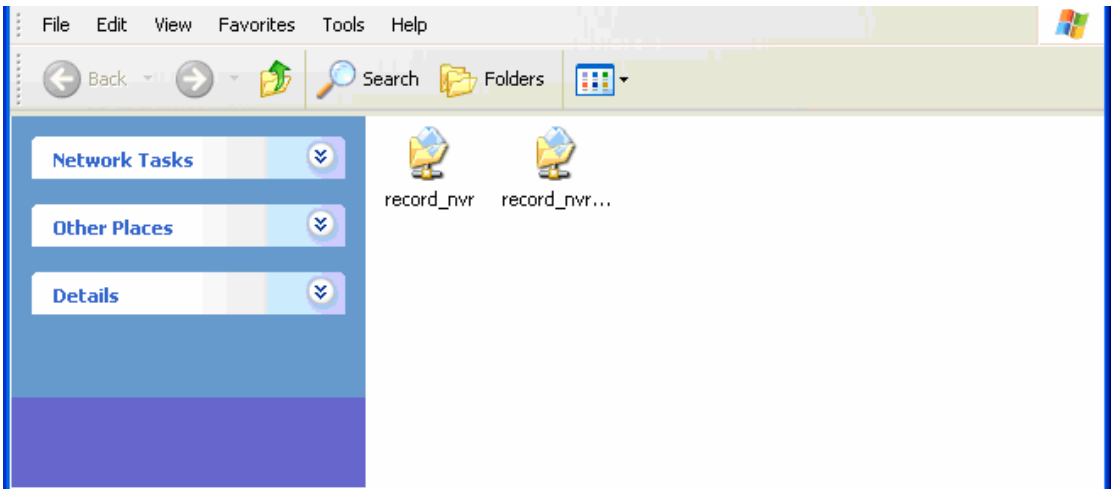
- Windows Network Neighborhood (SMB/CIFS)
- Web File Manager (HTTP)
- FTP Server (FTP)

**Note:** To access the video files directly via these protocols, you are required to enter user name and password with administrator privileges.

### 4.2.1 Windows Network Neighborhood (SMB/CIFS)

You can access recorded files through SMB/CIFS protocol, which is popularly used in Windows system. You can connect to the recording folder by either:

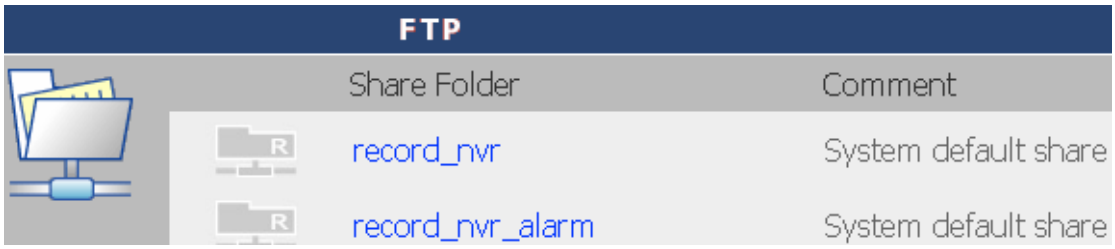
- In Web Playback Interface, click button.
- In Windows XP, run "\\NVR IP \" from Start menu. For example, from the Start menu, click **Run**, then enter and run "\\192.168.1.201\" if the IP address of your NVR is 192.168.1.201.



### 4.2.2 Web File Manager (HTTP)

You can access recorded files from web browser by:

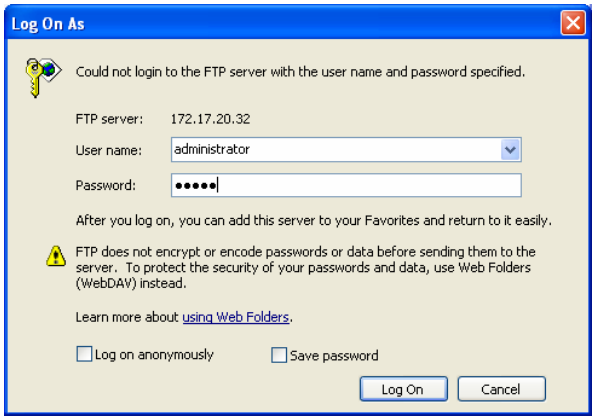
- In Web Playback Interface, click .

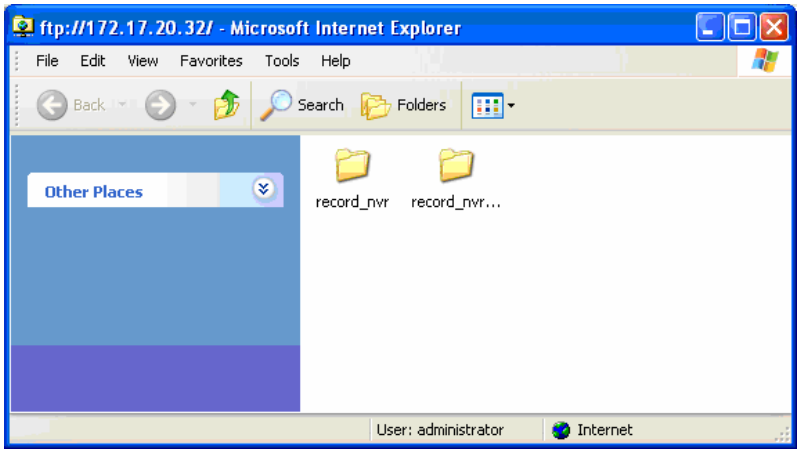


### 4.2.3 FTP Server (FTP)

You can access recorded files through FTP protocol by either:

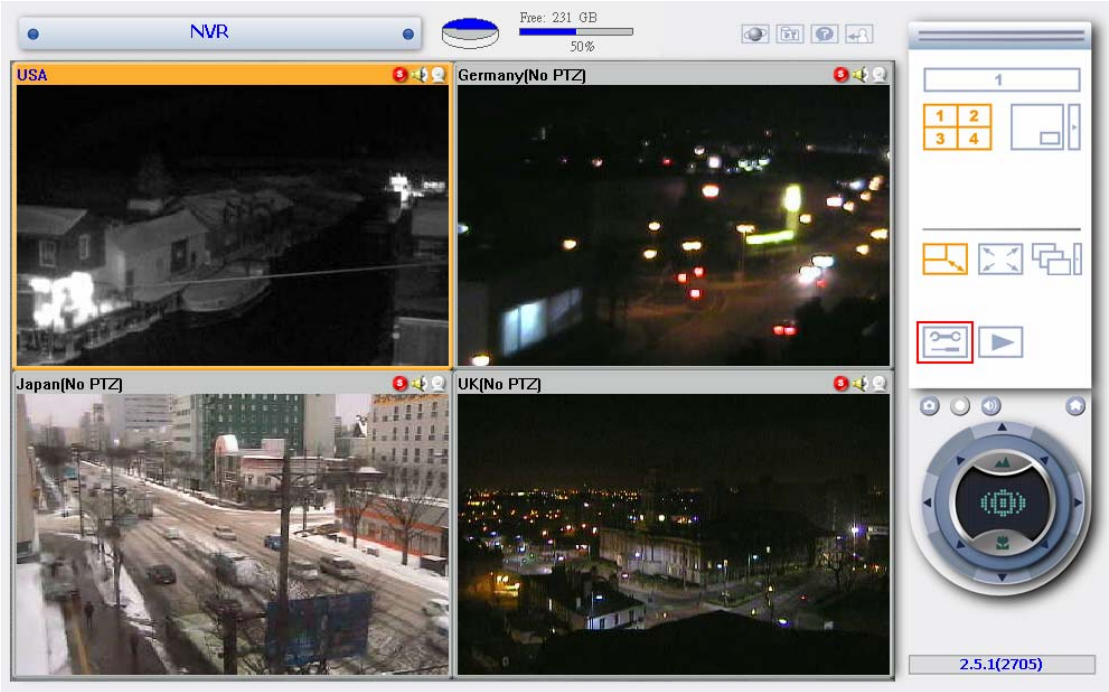
- In Web Playback Interface, click .
- In Windows Internet Explorer, enter the following address "ftp://username:password@NVR_ip_address/" to connect. For example, enter "ftp://administrator:admin@192.168.1.201/" if the IP address of your NVR is 192.168.1.201.


Log On As
Could not login to the FTP server with the user name and password specified.
FTP server: 172.17.20.32
User name: administrator
Password:
After you log on, you can add this server to your Favorites and return to it easily.
FTP does not encrypt or encode passwords or data before sending them to the server. To protect the security of your passwords and data, use Web Folders (WebDAV) instead.
Learn more about using Web Folders.
Log on anonymously
Save password
Log On
Cancel

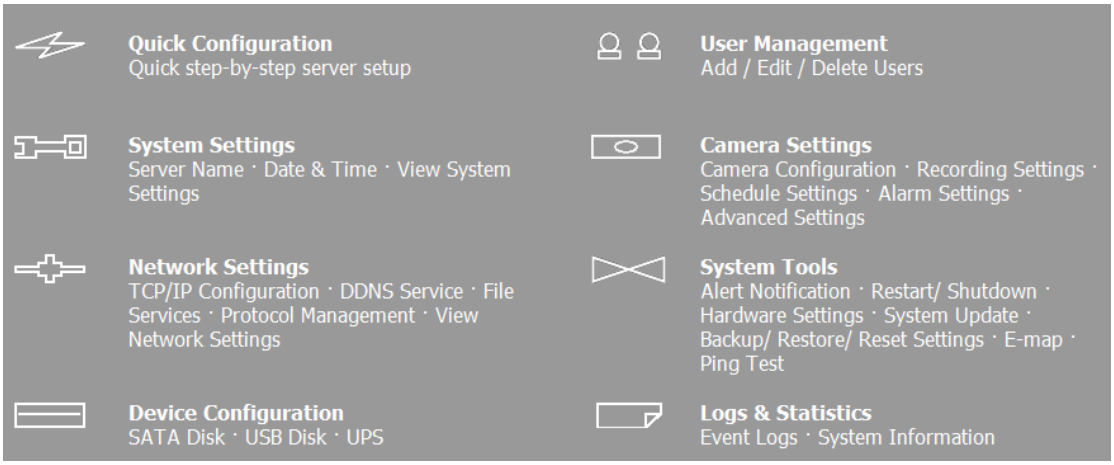


# Chapter 5 System Administration

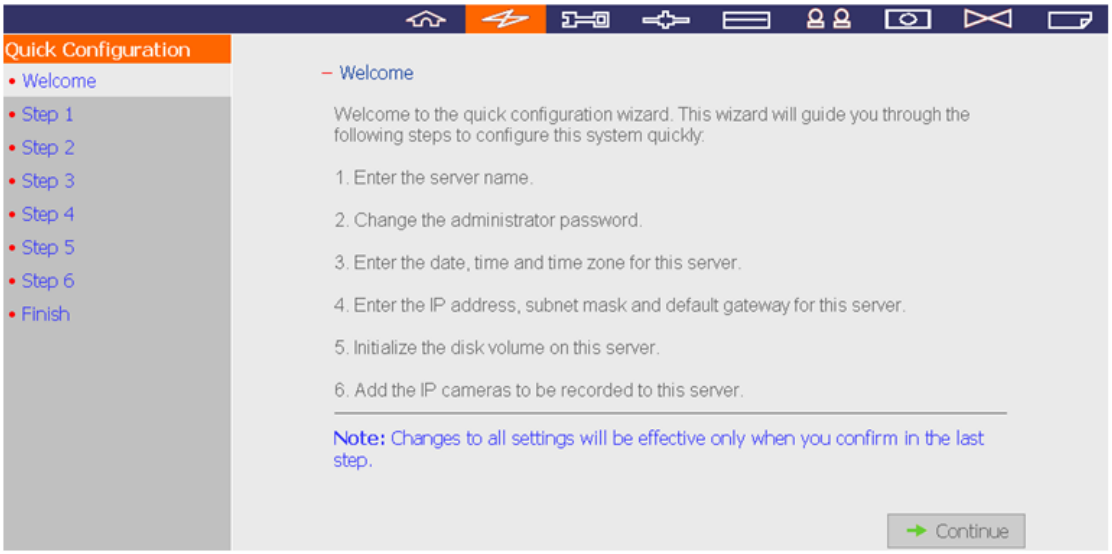
To login NVR system configuration page, please login the monitoring page as an administrator and click .



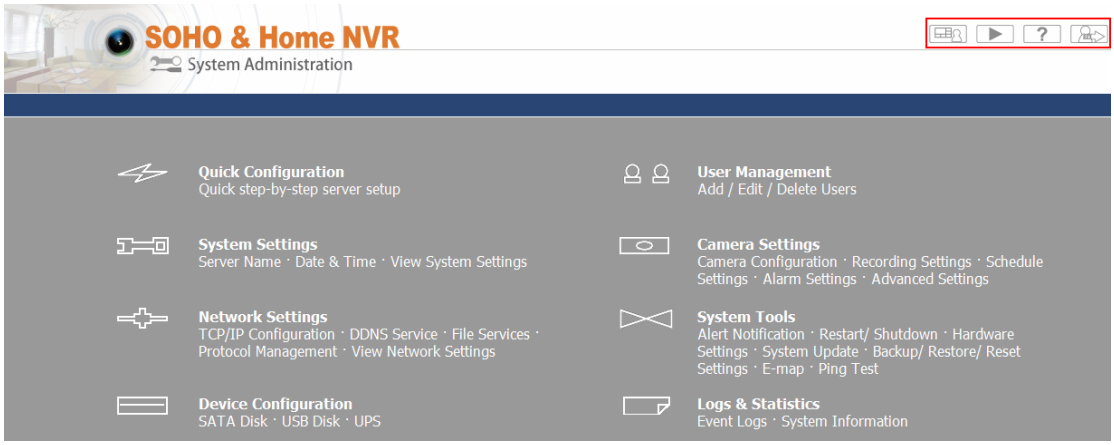

The System Administration home page will be open as below:


Quick Configuration
Quick step-by-step server setup
User Management
Add / Edit / Delete Users
System Settings
Server Name · Date & Time · View System Settings
Camera Settings
Camera Configuration · Recording Settings · Schedule Settings · Alarm Settings · Advanced Settings
Network Settings
TCP/IP Configuration · DDNS Service · File Services · Protocol Management · View Network Settings
System Tools
Alert Notification · Restart/ Shutdown · Hardware Settings · System Update · Backup/ Restore/ Reset Settings · E-map · Ping Test
Device Configuration
SATA Disk · USB Disk · UPS
Logs & Statistics
Event Logs · System Information

If the system is not configured yet, the Quick Configuration page will be open to guide you through the setup steps first.


Quick Configuration
• Welcome
• Step 1
• Step 2
• Step 3
• Step 4
• Step 5
• Step 6
• Finish
– Welcome
Welcome to the quick configuration wizard. This wizard will guide you through the following steps to configure this system quickly:
1. Enter the server name.
2. Change the administrator password.
3. Enter the date, time and time zone for this server.
4. Enter the IP address, subnet mask and default gateway for this server.
5. Initialize the disk volume on this server.
6. Add the IP cameras to be recorded to this server.
Note: Changes to all settings will be effective only when you confirm in the last step.
Continue

If there are questions, click on the help button on the top right hand corner. The functions of the buttons are described below:


SOHO & Home NVR
System Administration
Quick Configuration
Quick step-by-step server setup
User Management
Add / Edit / Delete Users
System Settings
Server Name · Date & Time · View System Settings
Camera Settings
Camera Configuration · Recording Settings · Schedule Settings · Alarm Settings · Advanced Settings
Network Settings
TCP/IP Configuration · DDNS Service · File Services · Protocol Management · View Network Settings
System Tools
Alert Notification · Restart/ Shutdown · Hardware Settings · System Update · Backup/ Restore/ Reset Settings · E-map · Ping Test
Device Configuration
SATA Disk · USB Disk · UPS
Logs & Statistics
Event Logs · System Information

Return to monitoring page

Playback recorded video

View On-line help

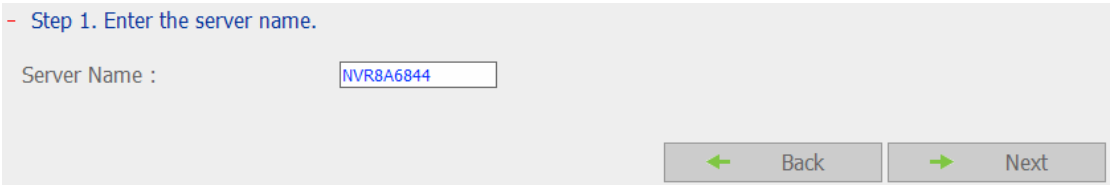
Log out

## 5.1 Quick Configuration

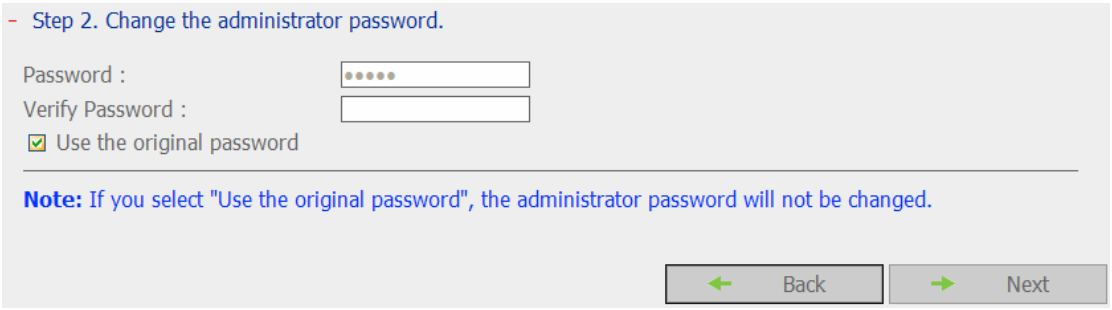
Please follow the instructions on the web page to configure NVR.

**Note:** All changes to the settings will be effective only when the last step is applied.

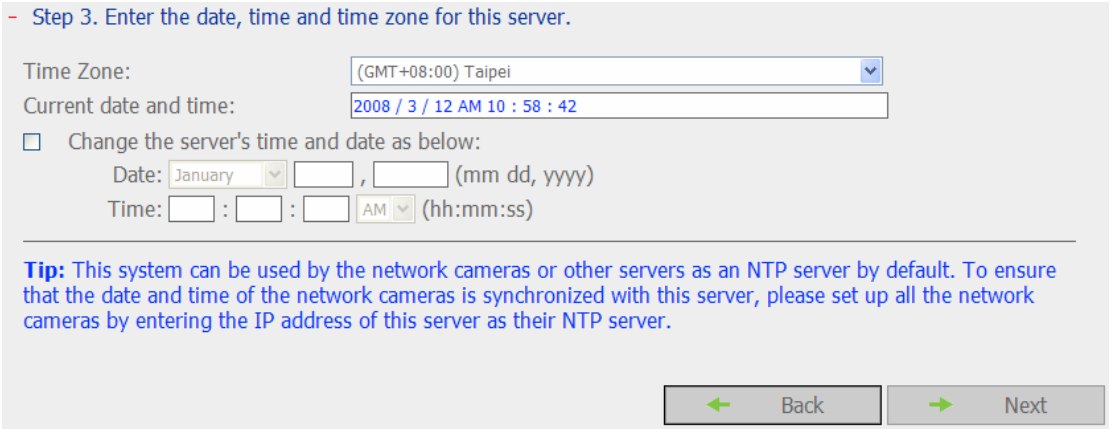
Step 1. Enter the server name.



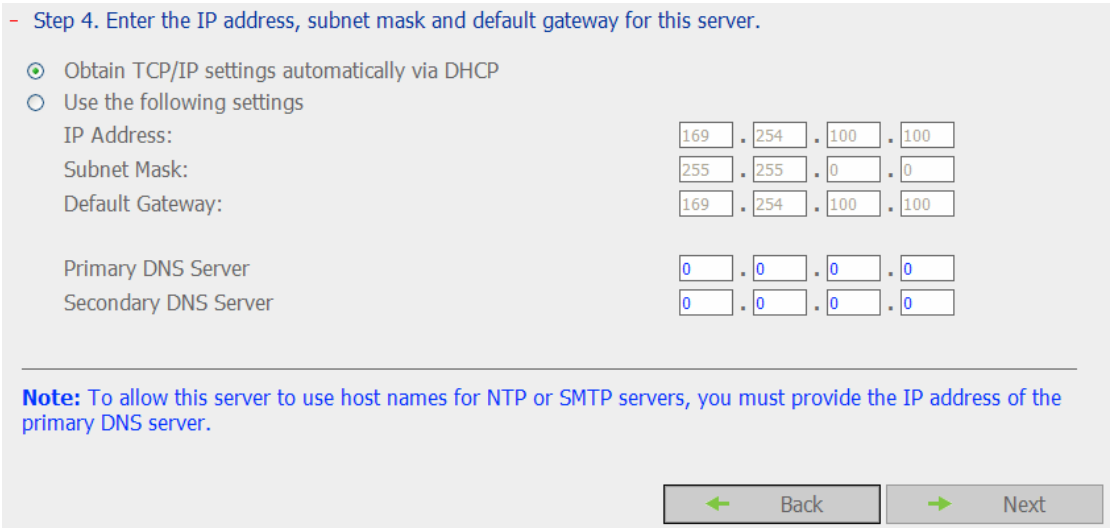

Step 2. Change the administrator password or select to use the original password.


Step 2. Change the administrator password.
Password :
Verify Password :
Use the original password
Note: If you select "Use the original password", the administrator password will not be changed.
Back
Next

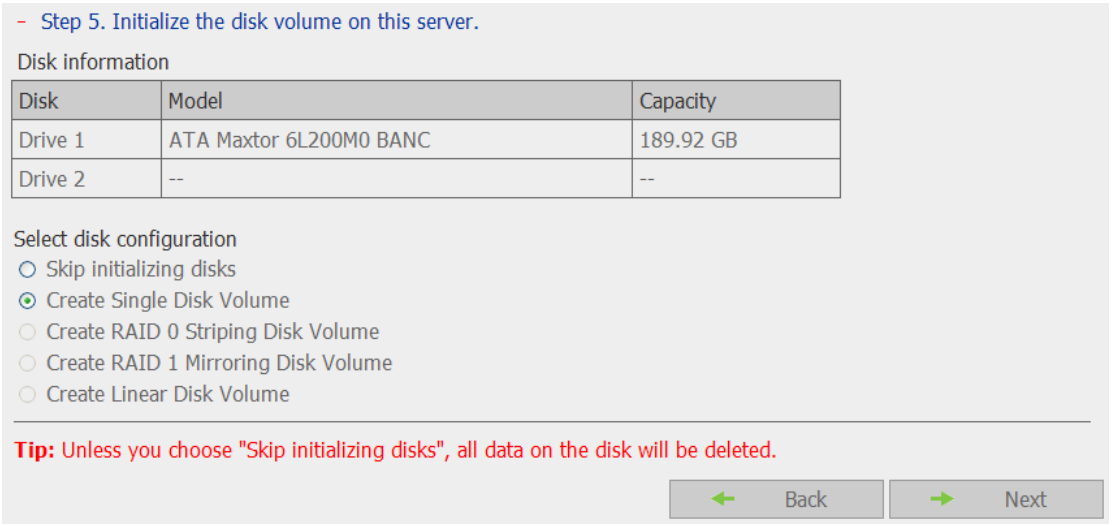
Step 3. Enter the date, time, and time zone of the server.


Step 3. Enter the date, time and time zone for this server.
Time Zone:
(GMT+08:00) Taipei
Current date and time:
2008 / 3 / 12 AM 10 : 58 : 42
Change the server's time and date as below:
Date: January , (mm dd, yyyy)
Time: : : AM (hh:mm:ss)
Tip: This system can be used by the network cameras or other servers as an NTP server by default. To ensure that the date and time of the network cameras is synchronized with this server, please set up all the network cameras by entering the IP address of this server as their NTP server.
Back
Next

Step 4. Enter the IP address, subnet mask and default gateway of the server.

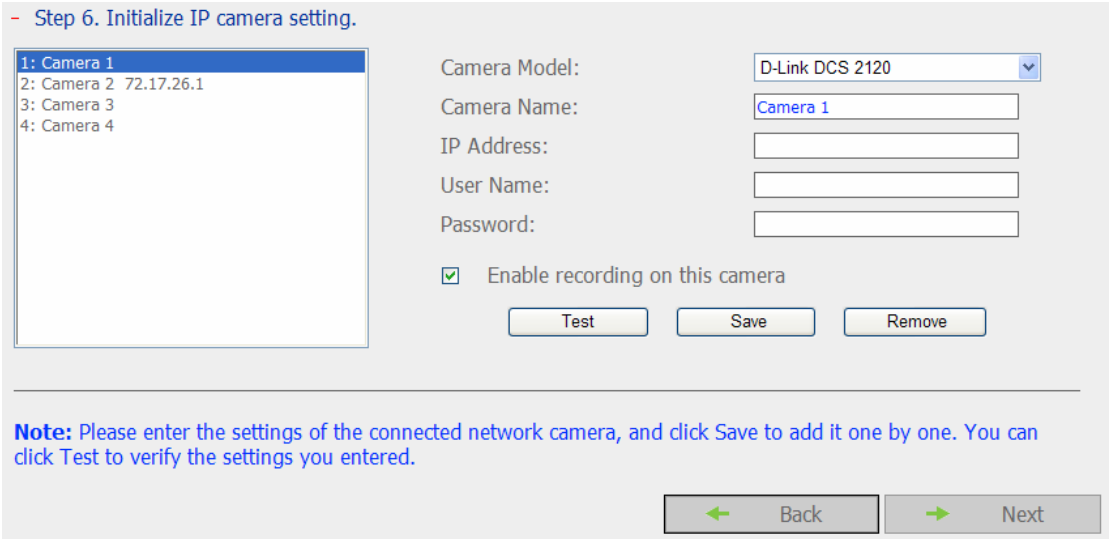

- Step 4. Enter the IP address, subnet mask and default gateway for this server.
Obtain TCP/IP settings automatically via DHCP
Use the following settings
IP Address: 169 . 254 . 100 . 100
Subnet Mask: 255 . 255 . 0 . 0
Default Gateway: 169 . 254 . 100 . 100
Primary DNS Server 0 . 0 . 0 . 0
Secondary DNS Server 0 . 0 . 0 . 0
Note: To allow this server to use host names for NTP or SMTP servers, you must provide the IP address of the primary DNS server.
Back
Next

Step 5. Select the disk configuration to initialize the disk volume for the first time configuration. All data on the disk(s) will be deleted.

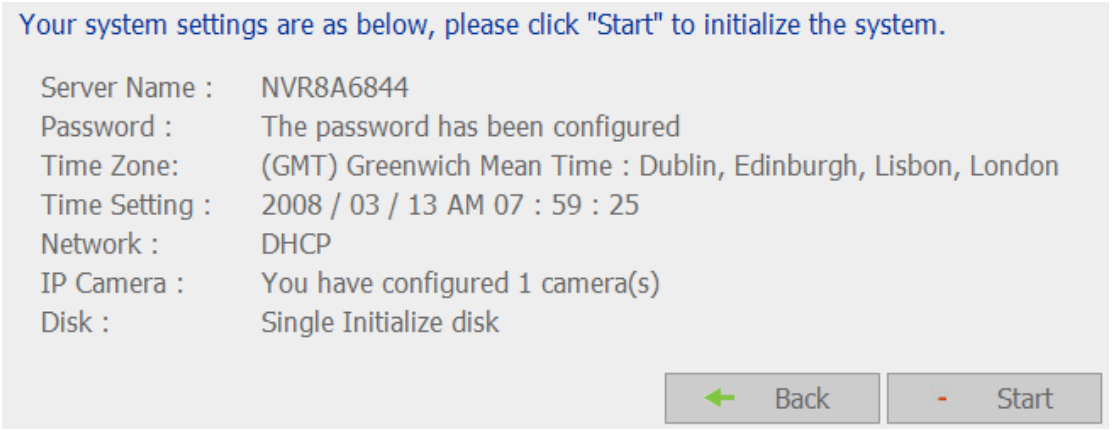

- Step 5. Initialize the disk volume on this server.
Disk information
Disk | Model | Capacity
Drive 1 | ATA Maxtor 6L200M0 BANC | 189.92 GB
Drive 2 | -- | --
Select disk configuration
Skip initializing disks
Create Single Disk Volume
Create RAID 0 Striping Disk Volume
Create RAID 1 Mirroring Disk Volume
Create Linear Disk Volume
Tip: Unless you choose "Skip initializing disks", all data on the disk will be deleted.
Back
Next

Step 6. Initialize IP camera setting.

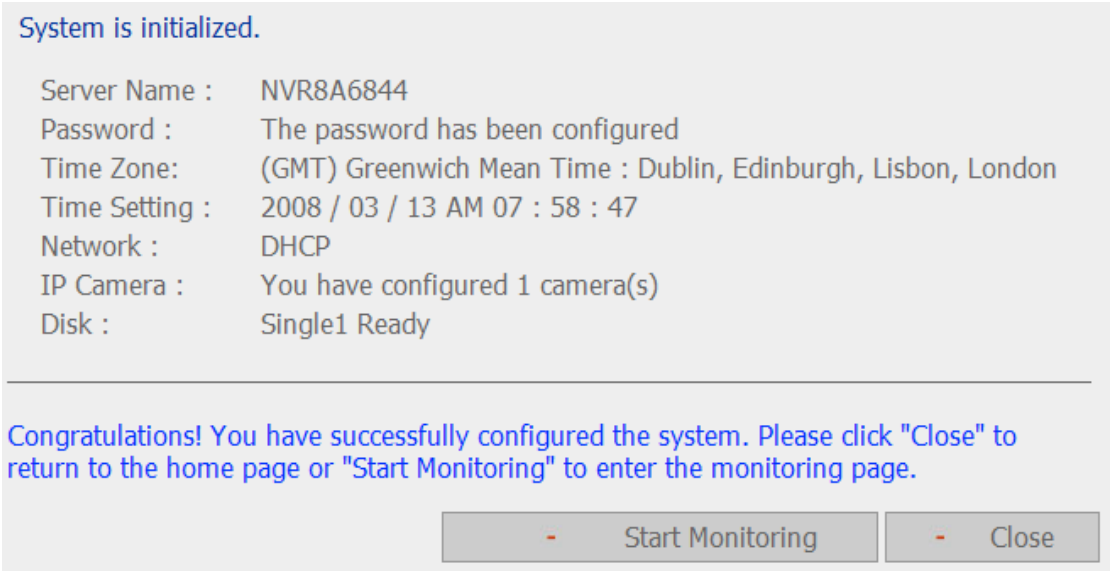
You can add up to 4 cameras in camera setting. Select the camera model; enter the camera name and IP address of the camera, and the user name and password to login the camera. You can also enable or disable recording on each camera, test connection to the cameras and then click **Save** to apply the changes.




After completing the settings, click **Start** to apply the changes and initialize the system.


Your system settings are as below, please click "Start" to initialize the system.
Server Name : NVR8A6844
Password : The password has been configured
Time Zone: (GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London
Time Setting : 2008 / 03 / 13 AM 07 : 59 : 25
Network : DHCP
IP Camera : You have configured 1 camera(s)
Disk : Single Initialize disk
Back
Start

Congratulations!  Quick configuration is completed and you can start to use NVR. Click **Start Monitoring** to view the live video from the cameras or click Close to return to the system administration home page.


System is initialized.
Server Name : NVR8A6844
Password : The password has been configured
Time Zone: (GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London
Time Setting : 2008 / 03 / 13 AM 07 : 58 : 47
Network : DHCP
IP Camera : You have configured 1 camera(s)
Disk : Single1 Ready
Congratulations! You have successfully configured the system. Please click "Close" to return to the home page or "Start Monitoring" to enter the monitoring page.
Start Monitoring
Close

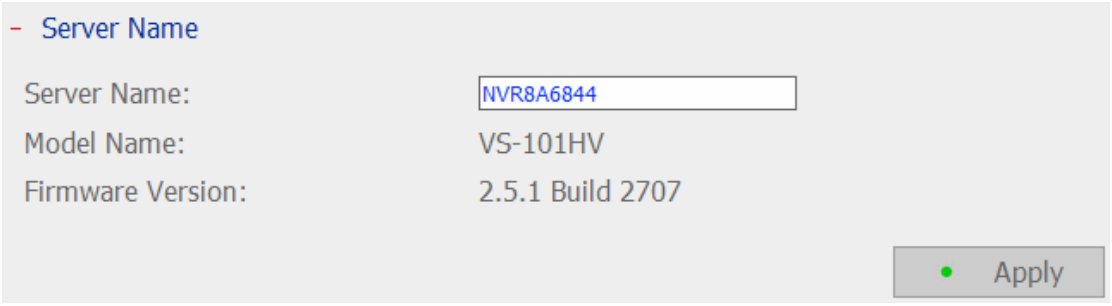
## 5.2 System Settings

You can configure basic system settings including server name, date & time, and view the system settings.

### 5.2.1 Server Name

Enter the name of NVR. The server name can be 14 characters long at maximum, which supports alphabets, numbers, and hyphen (-). The server does not accept names with space or names in pure number. The following characters are not supported.

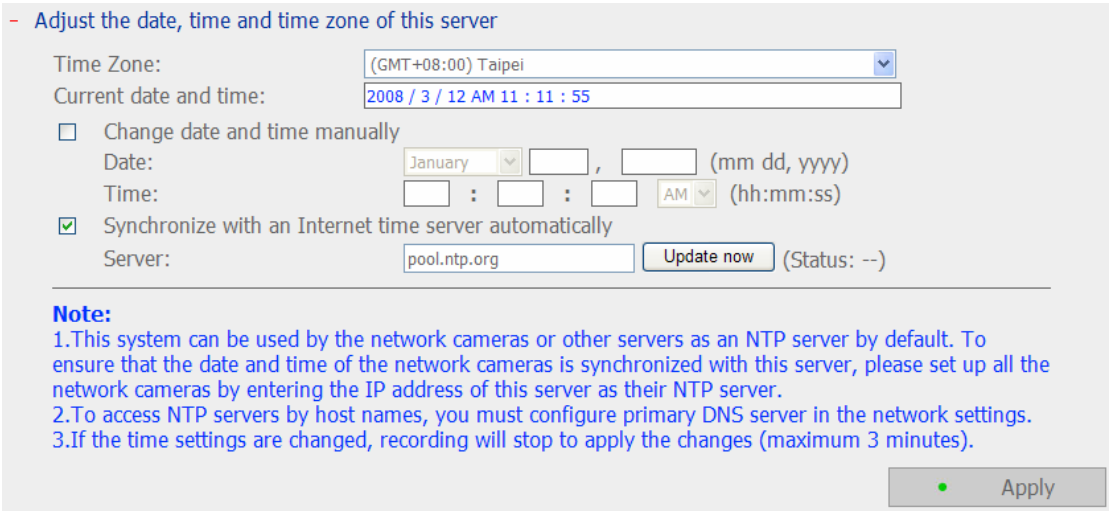
**. ; : " < > * + = \ | ? , [ ] /**



### 5.2.2 Date & Time

Set the date, time, and time zone according to your location. If the settings are incorrect, the following problems may occur:

- When playback the recorded video files, the display time will be incorrect.
- The time of event log displayed will be inconsistent with the actual time when an action occurs.


Adjust the date, time and time zone of this server
Time Zone:
(GMT+08:00) Taipei
Current date and time:
2008 / 3 / 12 AM 11 : 11 : 55
Change date and time manually
Date:
January
(mm dd, yyyy)
Time:
AM
(hh:mm:ss)
Synchronize with an Internet time server automatically
Server:
pool.ntp.org
Update now
(Status: --)
Note:
1.This system can be used by the network cameras or other servers as an NTP server by default. To ensure that the date and time of the network cameras is synchronized with this server, please set up all the network cameras by entering the IP address of this server as their NTP server.
2.To access NTP servers by host names, you must configure primary DNS server in the network settings.
3.If the time settings are changed, recording will stop to apply the changes (maximum 3 minutes).
Apply

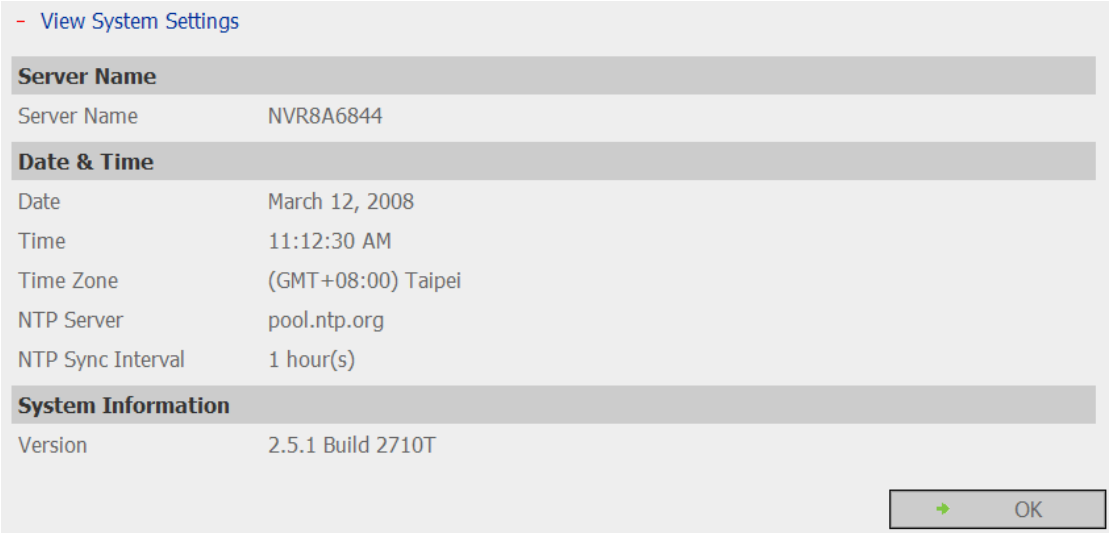
**Synchronize with an Internet time server automatically**

You can enable this option to update the date and time of the system automatically with specified NTP (Network Time Protocol) server. Enter the IP address or domain name of the NTP server, e.g. time.nist.gov, time.windows.com. Then enter the time interval for adjusting the time.

**Note:** The first time you enable NTP server, it may take several minutes for time synchronization before the time is correctly adjusted.

### 5.2.3 View System Settings

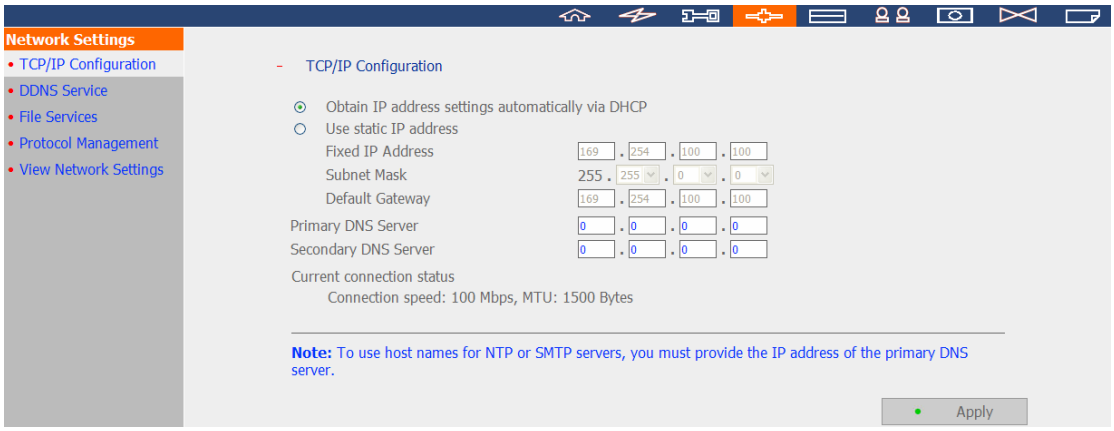
You can view all current system settings, e.g. server name, on this page.



## 5.3 Network Settings

You can configure WAN and LAN settings, DDNS service, file service, host access control and view network settings in this section.

### 5.3.1 TCP/IP Configuration


Network Settings
• TCP/IP Configuration
• DDNS Service
• File Services
• Protocol Management
• View Network Settings
TCP/IP Configuration
Obtain IP address settings automatically via DHCP
Use static IP address
Fixed IP Address
Subnet Mask
Default Gateway
Primary DNS Server
Secondary DNS Server
Current connection status
Connection speed: 100 Mbps, MTU: 1500 Bytes
Note: To use host names for NTP or SMTP servers, you must provide the IP address of the primary DNS server.
Apply

You can select one of the following two methods to configure the TCP/IP settings of NVR.

- **Obtain IP address settings automatically via DHCP**
  If your network supports DHCP, NVR will use DHCP protocol to retrieve the IP address and related information automatically.
- **Use static IP address**
  To use fixed IP address for network connection, enter fixed IP address, subnet mask, and default gateway.
- **Primary DNS Server**
  Enter the IP address of primary DNS server that provides DNS service for NVR in external network.
- **Secondary DNS Server**
  Enter the IP address of secondary DNS server that provides DNS service for NVR in external network.

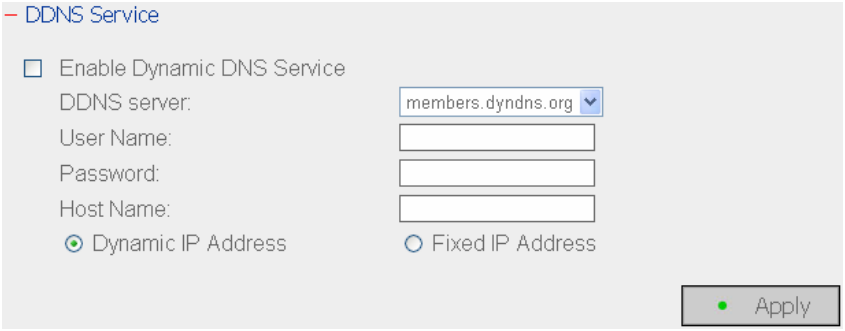
**Note:** Maximum Transmission Unit (MTU) refers to the size (in bytes) of the largest packet that a given layer of a communications protocol can transmit.

### 5.3.2 DDNS (Dynamic Domain Name) Service

DDNS service enables users to connect NVR via domain name directly. There is no need to know the real IP address of the server. To enable DDNS service, you have to register a DDNS account from a DDNS provider. Please refer to Appendix C.

**Note:** NVR currently supports the DDNS service provided by:

1. DynDNS (http://www.dyndns.org/)
2. ipcam.jp



### 5.3.3 File Services

You can enable SMB/ CIFS file service, Web File Manager and FTP service to access the recorded video files. These settings are enabled by default.

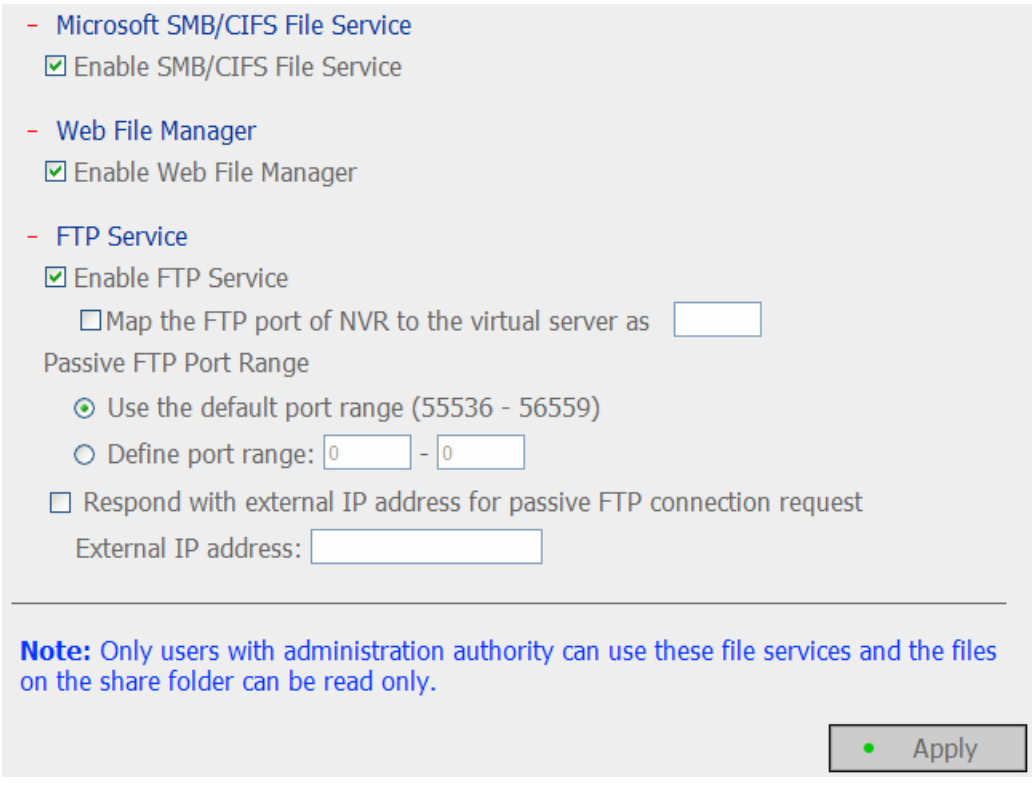
If your NVR is installed behind the router, you could **enable FTP port mapping**, so that users from external network can access NVR via FTP (please refer to Appendix F).

**Passive FTP Port Range**

You can use the default port range (55536-56559) or define a port range larger than 1023. When using this function, please make sure you have opened the configured port range on your router or firewall.

**Respond with external IP address for passive FTP connection request**

When passive FTP connection is in use and the NVR is configured under a router, if the remote computer cannot connect to the NVR via WAN, you can enable this function. By enabling this function, the FTP service replies the manually specified IP address or automatically detects the external IP address so that the remote computer can connect to the NVR successfully.

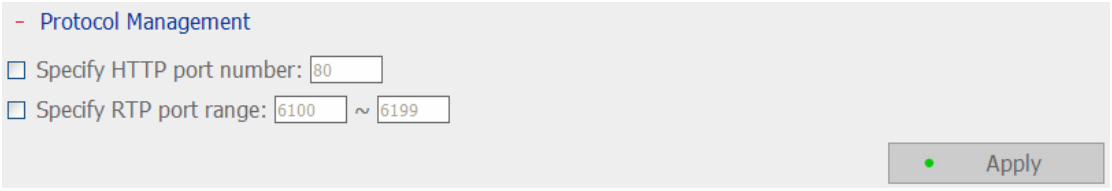

Microsoft SMB/CIFS File Service
Enable SMB/CIFS File Service
Web File Manager
Enable Web File Manager
FTP Service
Enable FTP Service
Map the FTP port of NVR to the virtual server as
Passive FTP Port Range
Use the default port range (55536 - 56559)
Define port range: 0 - 0
Respond with external IP address for passive FTP connection request
External IP address:
Note: Only users with administration authority can use these file services and the files on the share folder can be read only.
Apply

### 5.3.4 Protocol Management

To assign a specific port for accessing NVR via the web browser, please enable the option "Specify HTTP port number" and enter the port number. The default setting is 80.

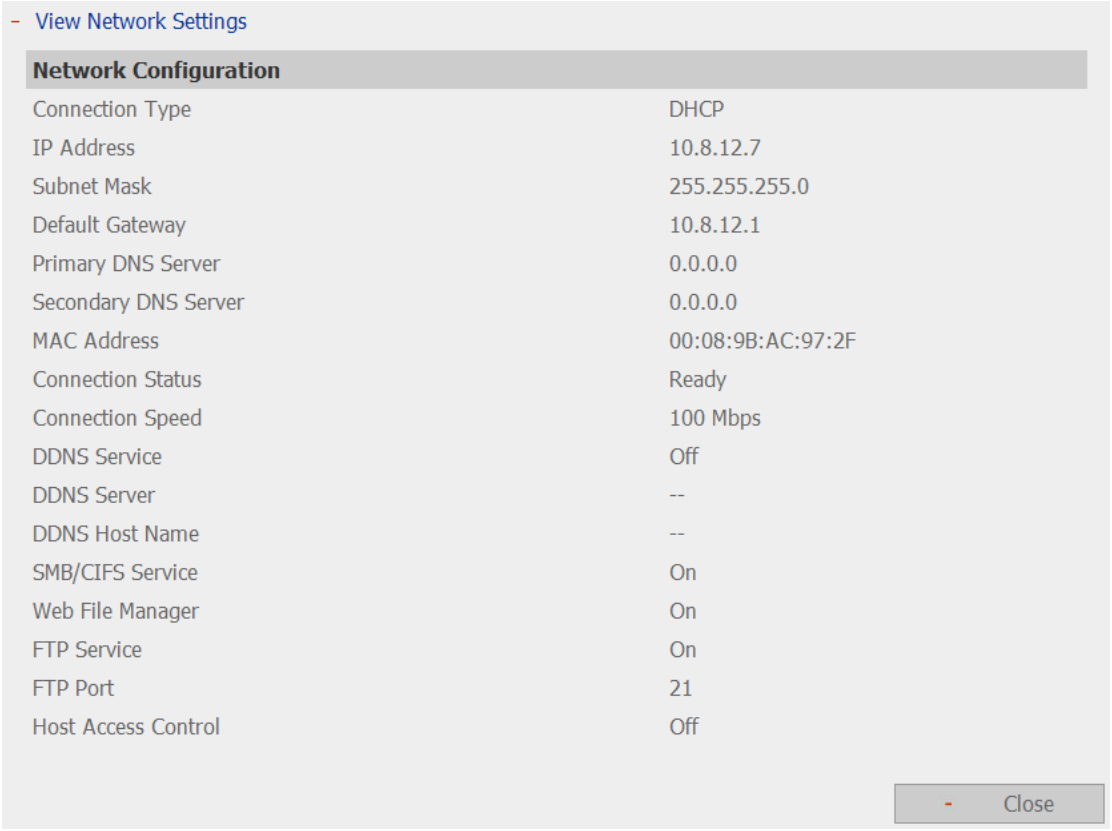
RTP (Real-time Transfer Protocol) is a standardized packet format for delivering real-time audio and video data of network cameras over the Internet. The real-time data transfer is monitored and controlled by RTP (also RTCP). The default setting is 6100-6199. If your network cameras use different RTP ports, please enable "Specify RTP port range" and enter the port numbers.

**Note:** Make sure you have opened the ports you set on the router or firewall to ensure normal monitoring and recording.



### 5.3.5 View Network Settings

You can view current network settings and status of NVR in this section.



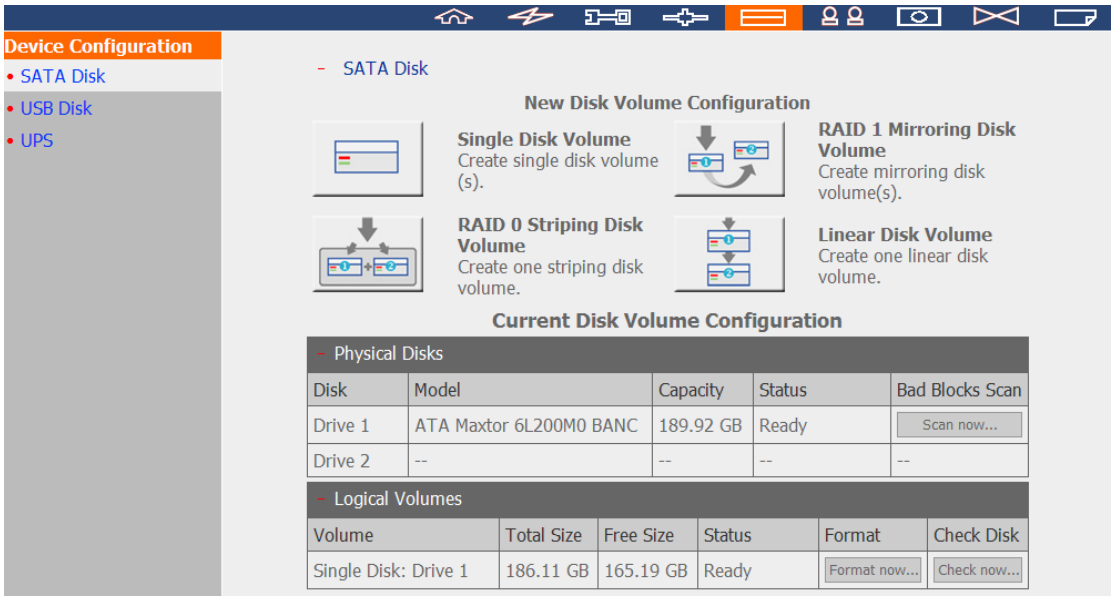
## 5.4 Device Configuration

You can configure SATA disk, USB disk, and UPS settings in this section.

### 5.4.1 SATA Disk

This page shows the model, size and current status of the disk(s) installed on NVR. You can format and check disks, and scan bad blocks on the disks. When the SATA disks are formatted, NVR will create the following default share folders:

- record_nvr: The folder for saving regular recording files
- record_nvr_alarm: The folder for alarm recording



You can create the disk volume of the following type:

- **Single Disk Volume**
  Each disk will be used as a standalone disk. However, if a disk is damaged, all data will be lost.

  **Note:** If there is only one hard disk, please install it in the tray of HDD1.

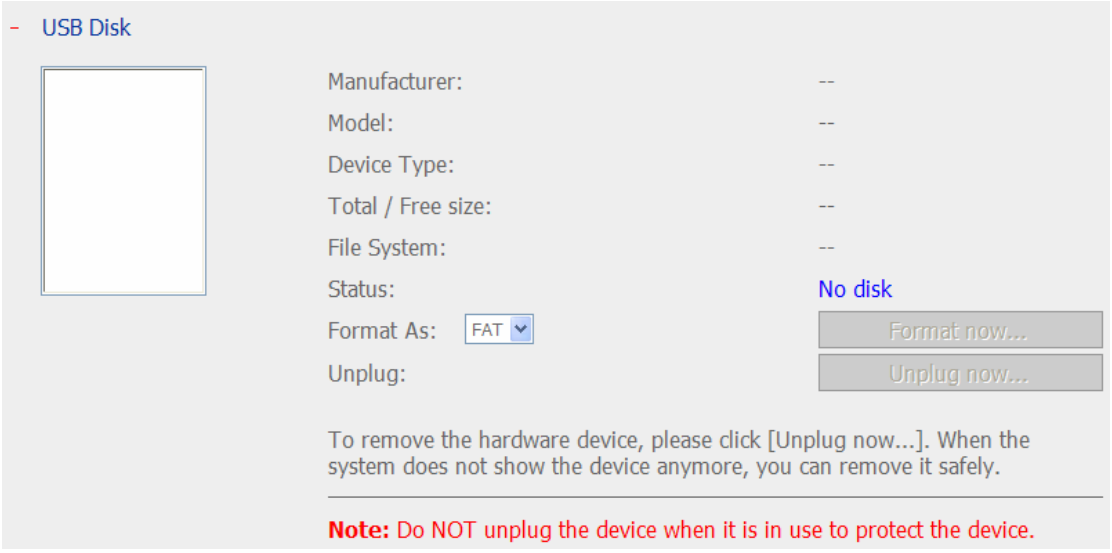
- **RAID 1 Mirroring Disk Volume**
  RAID 1 (mirroring disk) protects your data by automatically backing up the contents of one drive onto the second drive of a mirrored pair. This protects your data if one of the drives fails. Unfortunately, the storing capacity is equal to a single drive, as the second drive is used to automatically back up the first. Mirroring Disk is suitable for personal or corporate use to store important data.

- **RAID 0 Striping Disk Volume**
  RAID 0 (striping disk) combines 2 or more drives into one larger disk. It offers the fastest disk access but it does not have any protection of your data if the striped array fails. The disk capacity equals the number of drives in the array times the size of the smallest drive. Striping disk is usually used to maximize your disk capacity or for fast disk access but not for storing important data.

- **Linear Disk Volume**
  You can combine two or more disks into one larger disk. During file saving, the file will be saved on physical disks sequentially but does not have a disk failure file protection function. The overall capacity of linear disk is the sum of all disks. Linear disk is generally used for storing large data and is not appropriate to use for file protection of sensitive data.

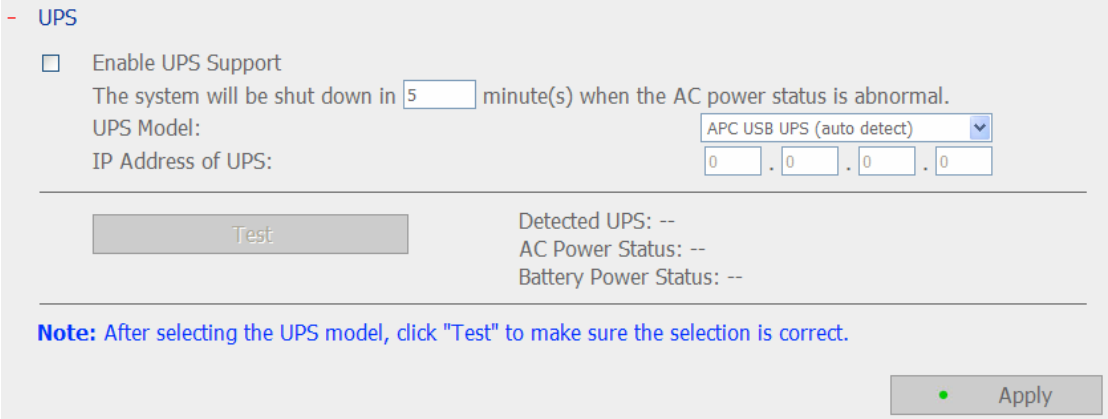
### 5.4.2 USB Disk

NVR supports USB disks for backup storage. Connect the USB device to the USB port of the server, when the device is successfully detected, the details will be shown on this page.


- USB Disk
Manufacturer: --
Model: --
Device Type: --
Total / Free size: --
File System: --
Status: No disk
Format As: FAT
Format now...
Unplug:
Unplug now...
To remove the hardware device, please click [Unplug now...]. When the system does not show the device anymore, you can remove it safely.
Note: Do NOT unplug the device when it is in use to protect the device.

### 5.4.3 UPS

If there is UPS, you can enable UPS support. If the AC power is abnormal, the system will shut down according to the settings. If the time has not reached and the power of the UPS is not sufficient, the system will shut down immediately to protect the server.


UPS
Enable UPS Support
The system will be shut down in 5 minute(s) when the AC power status is abnormal.
UPS Model:
APC USB UPS (auto detect)
IP Address of UPS:
0 . 0 . 0 . 0
Test
Detected UPS: --
AC Power Status: --
Battery Power Status: --
Note: After selecting the UPS model, click "Test" to make sure the selection is correct.
Apply

* It is recommended to connect UPS to one of the USB ports at the back of server.

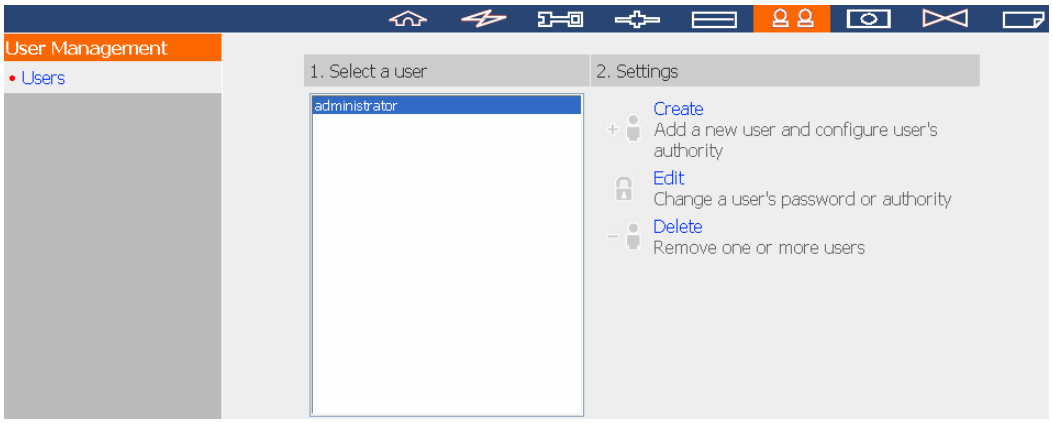
- **Enable UPS Support**
  Check this option to enable UPS support. You can configure the time when the system should shut down when AC power status is abnormal. In general, UPS can supply power for 5-10 minutes when AC power is down depending on the maximum load and number of connected devices of the UPS.
- **UPS Model**
  Select the UPS model on the list. If your UPS is not available on the list, please contact the distributor or the technical support of QNAP.
- **IP Address of UPS**
  If you select "APC UPS with SNMP Management", please enter the IP address of the UPS.

  **Note:** It is recommended to use APC Smart-UPS 700+ APC Network Management Card.

## 5.5 User Management

The server can be accessed by multiple users. For easier management and better control of users' access right, you have to organize users, user groups and their access right control.

**Note:** The server supports up to 32 users (including system default users). You can create new users when necessary.




There are two types of users:

A. Administrators

By default, administrator has access to system administration and cannot be deleted. Newly created user with system administration right can be deleted.

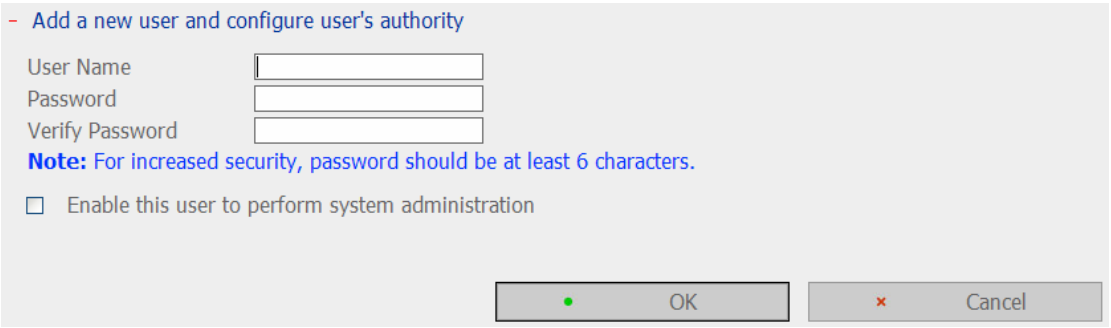
B. User

User has monitoring right only.

You can perform the following actions for user management:

1. Create user
2. Edit user
3. Delete user

### 5.5.1 Create user


Add a new user and configure user's authority
User Name
Password
Verify Password
Note: For increased security, password should be at least 6 characters.
Enable this user to perform system administration
OK
Cancel

**User Name**

The user name cannot be pure number. It must not exceed 32 characters. It is case-insensitive and supports double-byte characters, such as Chinese, Japanese, and Korean except:

**" / \ [ ] : ; | = , + * ? < >` '**

**Password**

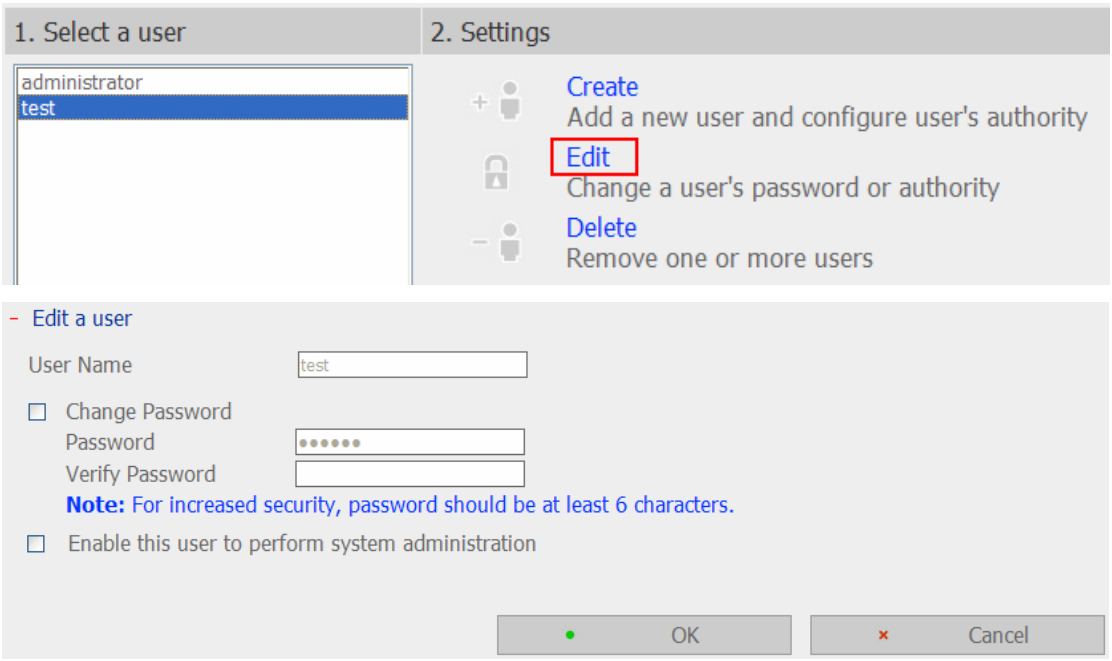
The password is case-sensitive and can be 16 characters long at maximum. It is recommended to use a password of at least 6 characters.

**Enable this user to perform system administration**

Assign administration right to the user.

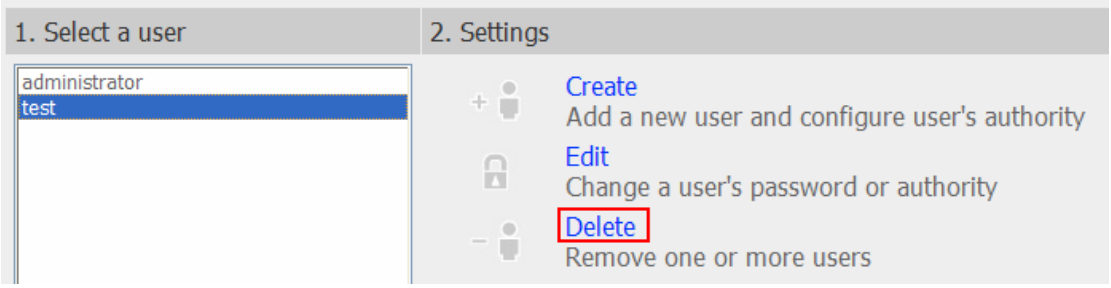
### 5.5.2 Edit User

Select a user on the list and click **Edit**. You can change the password, assign system administration and camera access control. However, the user name cannot be changed.

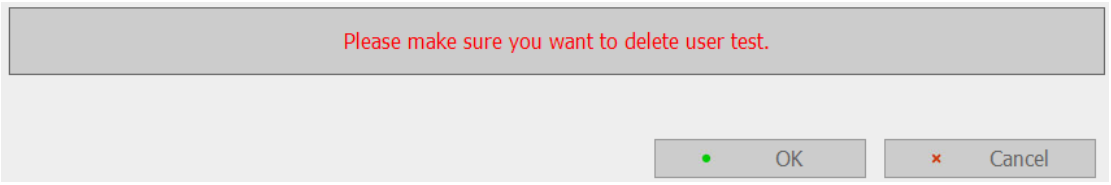


### 5.5.3 Delete User

To delete a user, select a user on the list and click **Delete**.




Click **OK** to confirm.




**Note:** System administrator cannot be deleted.

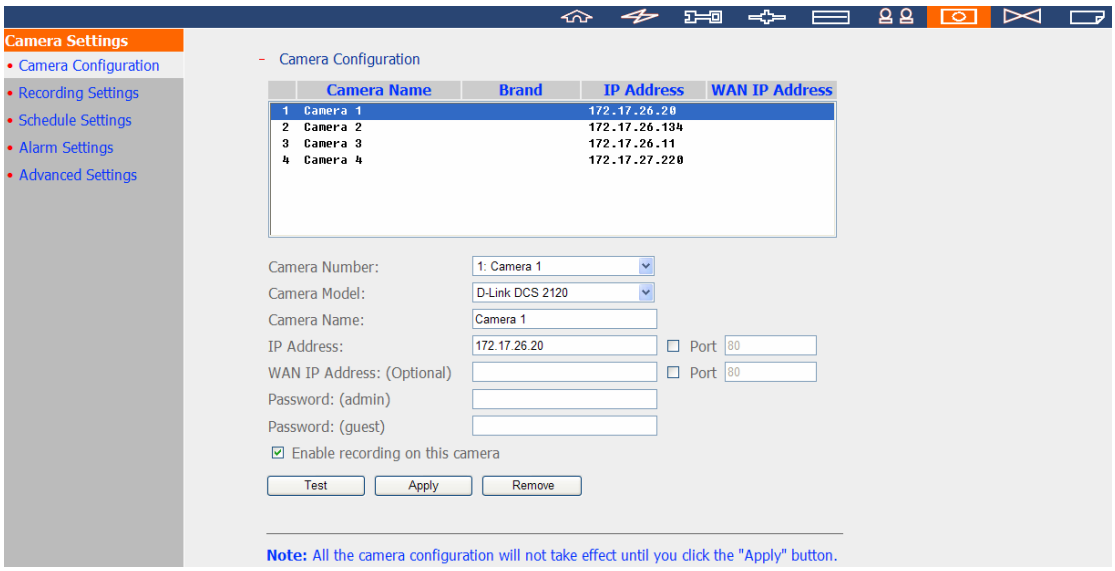
## 5.6 Camera Settings

You can configure network camera, recording, schedule, alarm, and advanced settings.

### 5.6.1 Camera Configuration

Please follow the steps below to configure the network cameras.

1. Select a camera number (1, 2, 3, and 4).
2. Select a camera model.
3. Enter the camera name.
4. Enter the IP address or domain name of the camera.
5. Enter the user name and password to login the camera.
6. Enable recording on the camera.
7. Click **Apply** to save the settings.

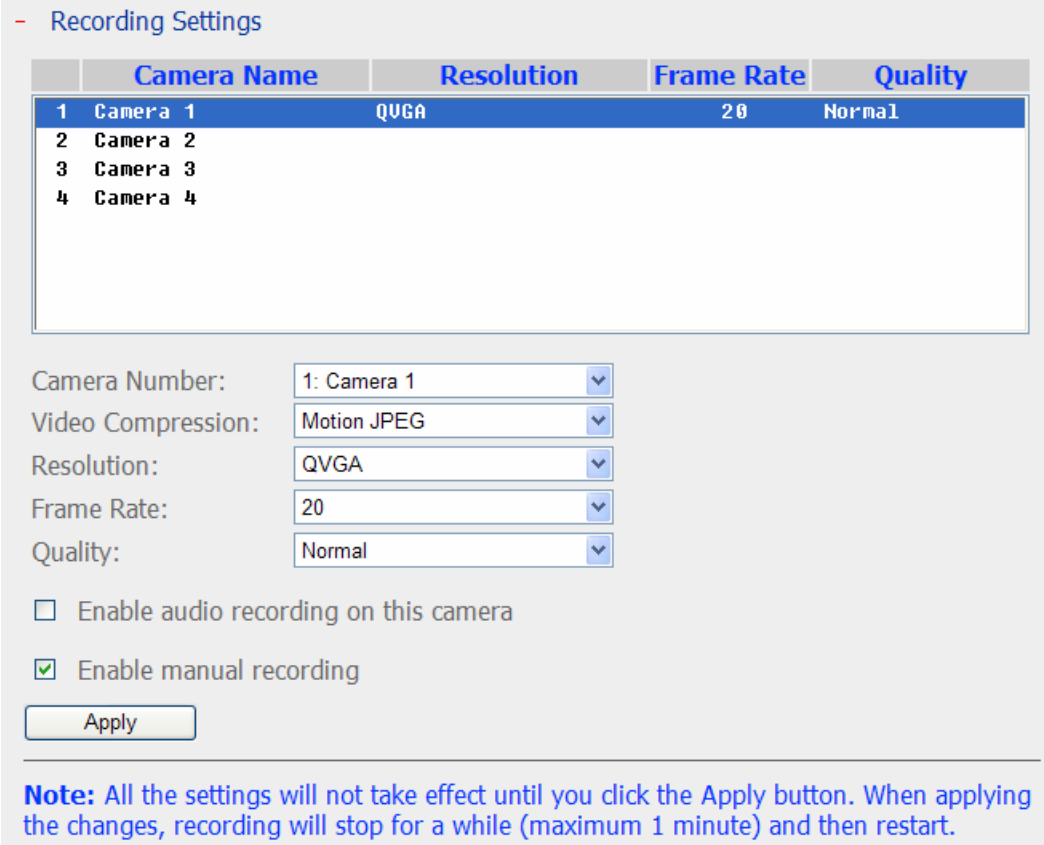



**Note:**

1. For detailed supported camera list, please refer to Appendix E.
2. All the settings will not take effect until you click **Apply** button. When applying changes, recording operation will stop for a while (maximum 1 minute) and then restart.

### 5.6.2 Recording Settings

Select a camera on the list and configure the recording resolution, frame rate, and quality. You can also enable manual recording. Click **Apply** to save the settings.



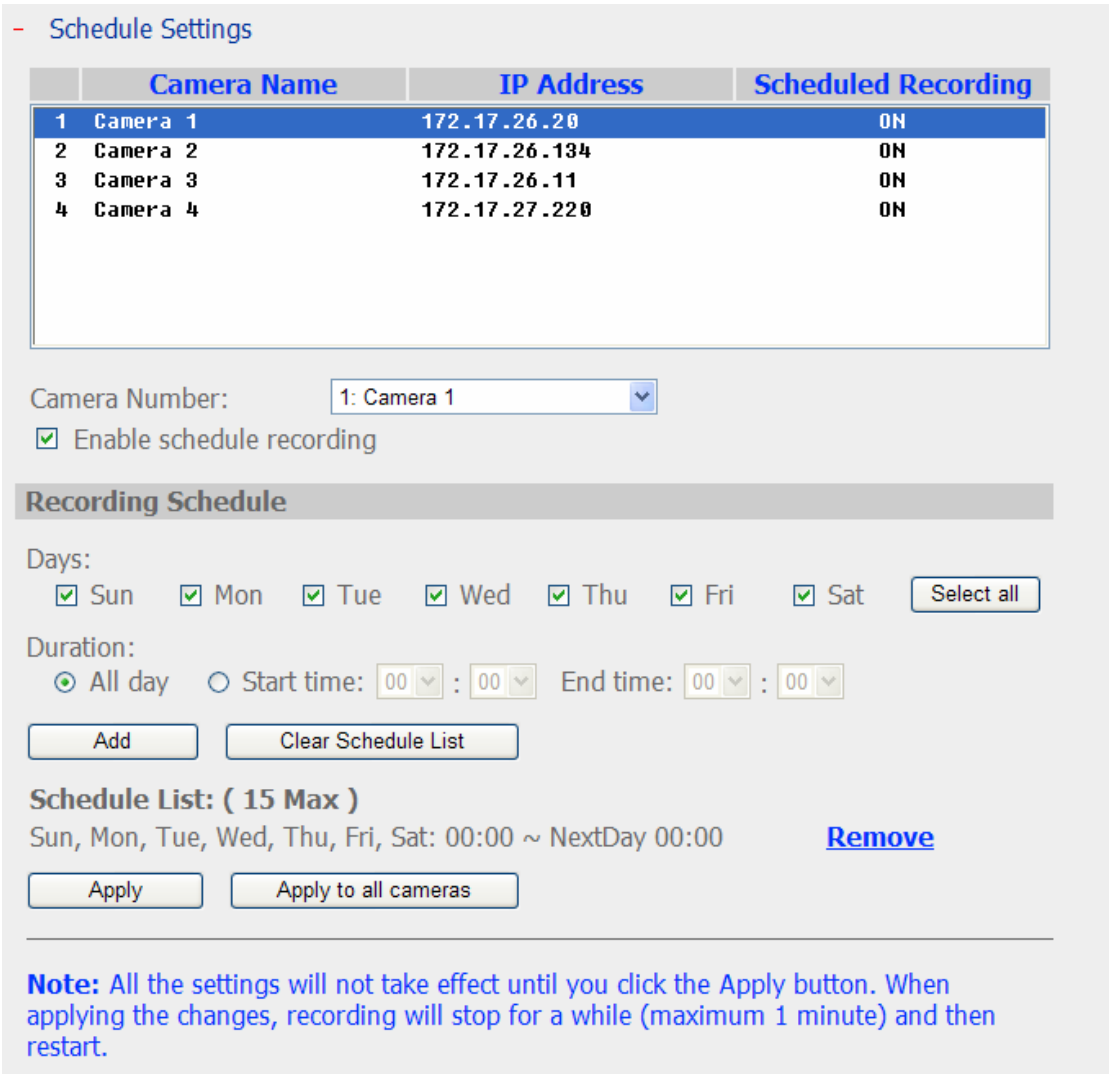

1. **Resolution:** Select the recording resolution.
2. **Frame rate:** Adjust the frame rate for recording. Note that the frame rate of the camera may be affected by the traffic of the network.
3. **Quality:** Select the image quality for recording. Higher quality consumes more disk space.
4. **(Option) Audio recording:** To enable audio recording, click Enable audio recording on this camera.
5. **Estimated storage space for recording:** The number of estimated storage space for recording is only for reference. The actual space consumed depends on the network environment and camera performance.
6. **Manual recording:** To allow manual activation and deactivation of manual recording function on monitoring page, enable this option.

**Note:**

1. Starting and stopping manual recording will not influent scheduled or alarm recording tasks. They are independent processes.
2. All the settings will not take effect until you click the **Apply** button. When applying changes, recording operation will stop for a while (maximum 1 minute) and then restart.

### 5.6.3 Schedule Settings

You can select continuous recording or scheduled recording. The default setting is continuous recording. To set up a recording schedule, please select a camera number on the list. Then select the date and time and click **Add**. Click **Apply** to add the setting for the camera or click **Apply to all cameras** to apply to setting to all cameras. To delete a schedule, click **Remove** on the schedule list.

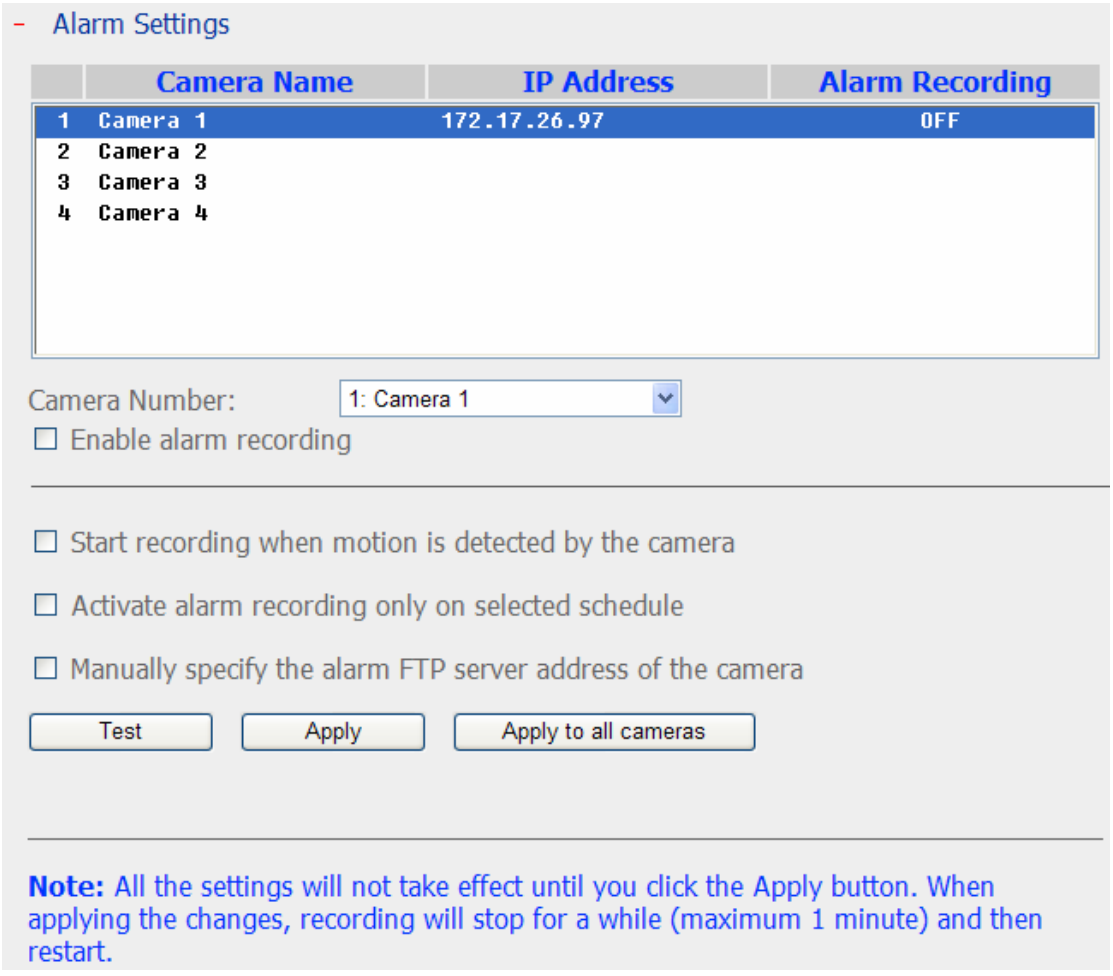

Schedule Settings
Camera Name
IP Address
Scheduled Recording
1 Camera 1 172.17.26.20 ON
2 Camera 2 172.17.26.134 ON
3 Camera 3 172.17.26.11 ON
4 Camera 4 172.17.27.220 ON
Camera Number:
1: Camera 1
Enable schedule recording
Recording Schedule
Days:
Sun Mon Tue Wed Thu Fri Sat
Select all
Duration:
All day
Start time: 00 : 00
End time: 00 : 00
Add
Clear Schedule List
Schedule List: ( 15 Max )
Sun, Mon, Tue, Wed, Thu, Fri, Sat: 00:00 ~ NextDay 00:00
Remove
Apply
Apply to all cameras
Note: All the settings will not take effect until you click the Apply button. When applying the changes, recording will stop for a while (maximum 1 minute) and then restart.

**Note:**

1. You can add up to 15 schedules.
2. All the settings will not take effect until you click the **Apply** button. When applying changes, recording operation will stop for a while (maximum 1 minute) and then restart.

### 5.6.4 Alarm Settings

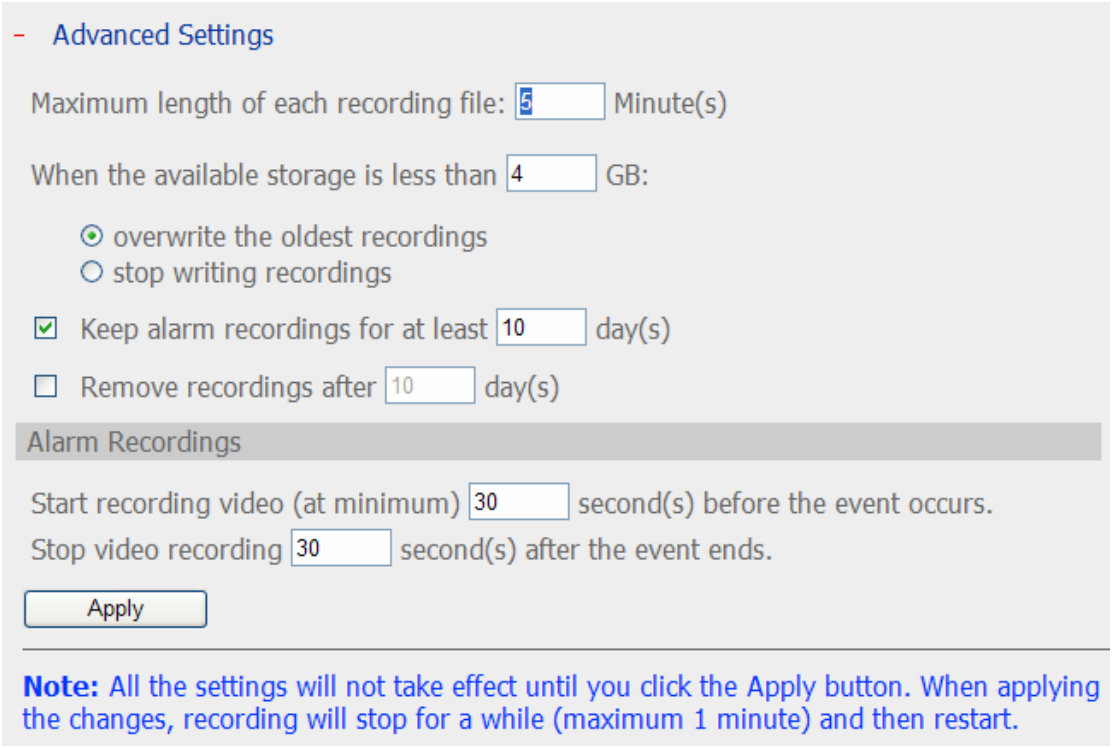
You can enable alarm recording of the cameras. Recording will be triggered by alarm input of the camera or motion detected by the camera.
When you enable the option "Activate alarm recording only on selected schedule", alarm recording will be activated only when alarm input is triggered or motion is detected within the preset schedule. You could test the camera setting by clicking **Test**. Click **Apply** to add the setting for the camera or click **Apply to all cameras** to apply to setting to all cameras.


Alarm Settings
Camera Name
IP Address
Alarm Recording
1 Camera 1 172.17.26.97 OFF
2 Camera 2
3 Camera 3
4 Camera 4
Camera Number:
1: Camera 1
Enable alarm recording
Start recording when motion is detected by the camera
Activate alarm recording only on selected schedule
Manually specify the alarm FTP server address of the camera
Test
Apply
Apply to all cameras
Note: All the settings will not take effect until you click the Apply button. When applying the changes, recording will stop for a while (maximum 1 minute) and then restart.

**Note:** All the settings will not take effect until you click the **Apply** button. When applying changes, recording operation will stop for a while (maximum 1 minute) and then restart.

### 5.6.5 Advanced Settings

You can configure advanced recording settings in this section.


Advanced Settings
Maximum length of each recording file: 5 Minute(s)
When the available storage is less than 4 GB:
overwrite the oldest recordings
stop writing recordings
Keep alarm recordings for at least 10 day(s)
Remove recordings after 10 day(s)
Alarm Recordings
Start recording video (at minimum) 30 second(s) before the event occurs.
Stop video recording 30 second(s) after the event ends.
Apply
Note: All the settings will not take effect until you click the Apply button. When applying the changes, recording will stop for a while (maximum 1 minute) and then restart.

- **Maximum period for each recording file:** Configure the maximum length of each recording file (maximum 15 min).

- **When the available storage is less than …GB:** Select the action to take when the available storage is less than the preset level. You can select to overwrite the oldest recordings or stop writing new recordings.

- **Keep alarm recordings for at least …day(s):** Specify the number of days that alarm recordings will be retained. This will prevent the recording files from being overwritten when the free storage space is insufficient.

- **Remove recordings after …day(s):** Enter the number of calendar days for NVR to keep the recording files.
  Please make sure your storage capacity is enough for saving the data for the number of calendar days you set. When recording data has reached the expiry date, expired video files will be deleted. For example, if you set to

delete recording data after 7 calendar days, on the 8th day, files recorded on the first day of each camera will be deleted so that NVR can start to save data of the 8th day.

- **Pre/Post Alarm Recordings**
  - **Start recording video…second(s) before the event occurs:** Enter the number of seconds to start recording before an event occurs.
  - **Stop video recording…second(s) after the event ends:** Enter the number of seconds to stop recording after an event ends.

The maximum number of seconds for the above settings is 300, i.e. 5 minutes.

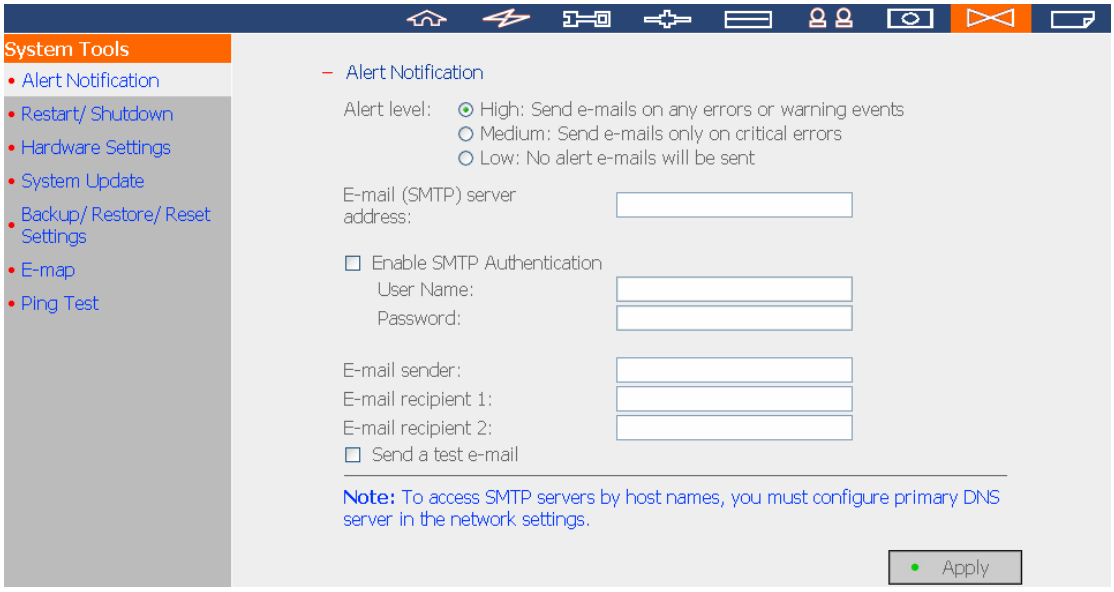
**Note:** All the settings will not take effect until you click the **Apply** button. When applying changes, recording operation will stop for a while (maximum 1 minute) and then restart.

## 5.7 System Tools

System Tools enable you to optimize the system maintenance and management. You can set alert notification, restart or shut down the server, configure hardware settings, system update, back up/ restore/ reset settings, set E-map and do ping test.

### 5.7.1 Alert Notification

Enter the e-mail address of the administrator and the IP address of the SMTP server. In case of warning or malfunction, e.g. power outage, a drive is unplugged, an e-mail will be sent to the administrator automatically. You can go to Event Logs to check the details of all errors and warnings.

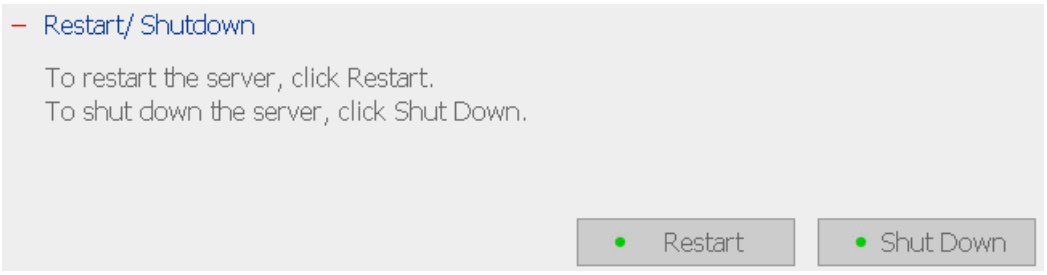



**Note:** It is recommended to send a test e-mail to make sure you can receive the alert mails.

### 5.7.2 Restart/ Shut Down

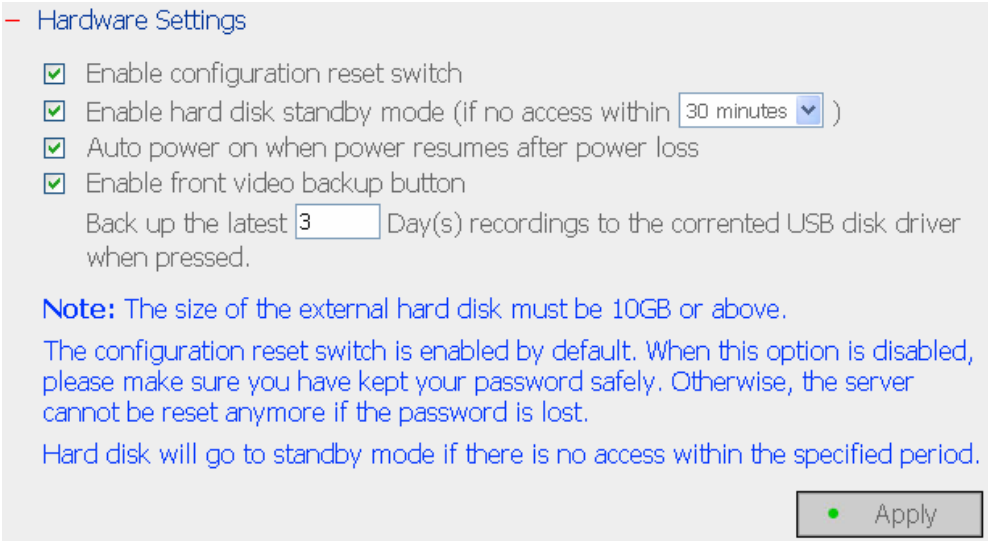
Follow the steps below to restart or shut down the server.

1. Enter the administration page and select **Restart/ Shutdown** in System Tools.
2. Click Restart to reboot the server or Shut Down to turn off the server.



### 5.7.3 Hardware Settings

You can enable or disable the hardware functions of the server.


Hardware Settings
Enable configuration reset switch
Enable hard disk standby mode (if no access within 30 minutes )
Auto power on when power resumes after power loss
Enable front video backup button
Back up the latest 3 Day(s) recordings to the corrented USB disk driver when pressed.
Note: The size of the external hard disk must be 10GB or above.
The configuration reset switch is enabled by default. When this option is disabled, please make sure you have kept your password safely. Otherwise, the server cannot be reset anymore if the password is lost.
Hard disk will go to standby mode if there is no access within the specified period.
Apply

- **Enable configuration reset switch**

  By enabling this option, you can press the reset button for 5 seconds to reset the administrator password and system settings to default.

  **Note:** The configuration reset switch is enabled by default. When this option is disabled, please make sure you have kept your password safely. Otherwise, the server cannot be reset anymore if the password is lost.

- **Enable hard disk standby mode**

  When this function is enabled, hard disk will go to standby mode if there is no access within the specified period.

- **Auto power on when power resumes after power loss**

  When this function is enabled, the server will turn on automatically when the power resumes after power loss.

- **Enable front video backup button**

  NVR supports direct copy of recording data on the server to the connected USB device via the USB port. You can set the number of days that the video is recorded to copy to the device.

  To use this function, please follow the steps below:

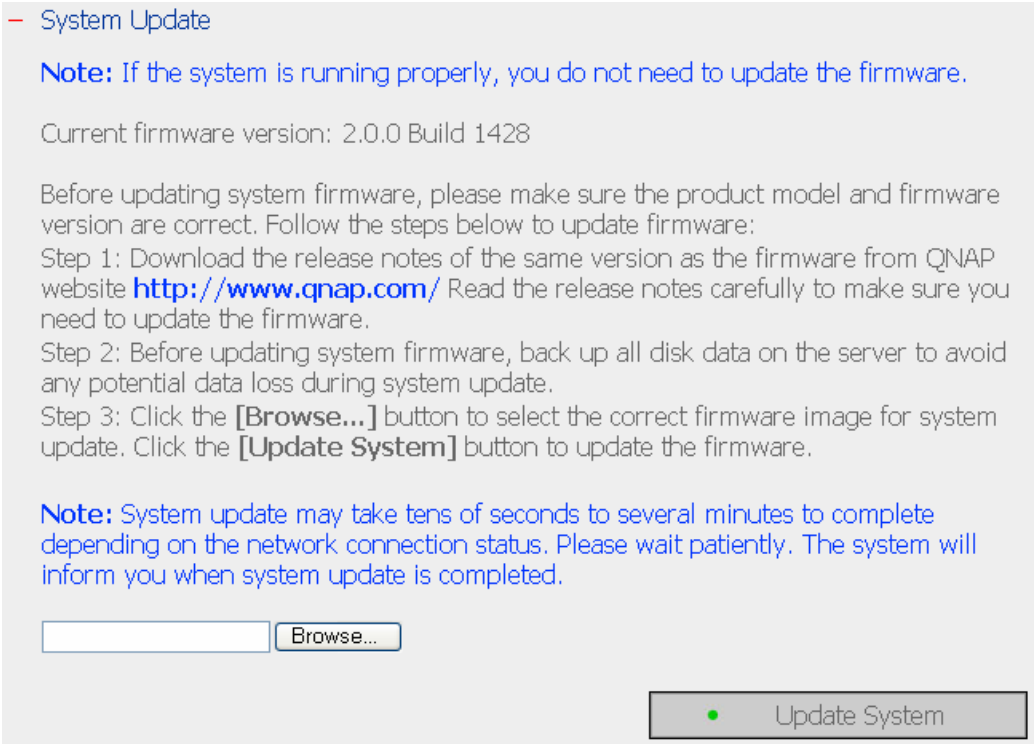
  1. Set the number of days that the latest recordings should be backed up. If 3 days are entered, the recordings of today, yesterday and the day before yesterday will be backed up.
  2. Connect a USB storage device, e.g. USB disk drive to the front USB port of NVR.

     Press the **Backup** button on NVR. The recording data on NVR will start to be copied to the USB device instantly. If the USB device is recognized, the USB LED glows in blue. The USB LED will blink in blue when the data is being copied. The LED will become blue again when data copy is finished. You can then safely remove the device.

**Note:** Video backup function supports only USB device of 10GB storage capacity or above.

### 5.7.4 System Update

Before updating system firmware, please make sure the product model and firmware version are correct. Follow the steps below to update firmware:


System Update
Note: If the system is running properly, you do not need to update the firmware.
Current firmware version: 2.0.0 Build 1428
Before updating system firmware, please make sure the product model and firmware version are correct. Follow the steps below to update firmware:
Step 1: Download the release notes of the same version as the firmware from QNAP website http://www.qnap.com/ Read the release notes carefully to make sure you need to update the firmware.
Step 2: Before updating system firmware, back up all disk data on the server to avoid any potential data loss during system update.
Step 3: Click the [Browse...] button to select the correct firmware image for system update. Click the [Update System] button to update the firmware.
Note: System update may take tens of seconds to several minutes to complete depending on the network connection status. Please wait patiently. The system will inform you when system update is completed.
Browse...
Update System

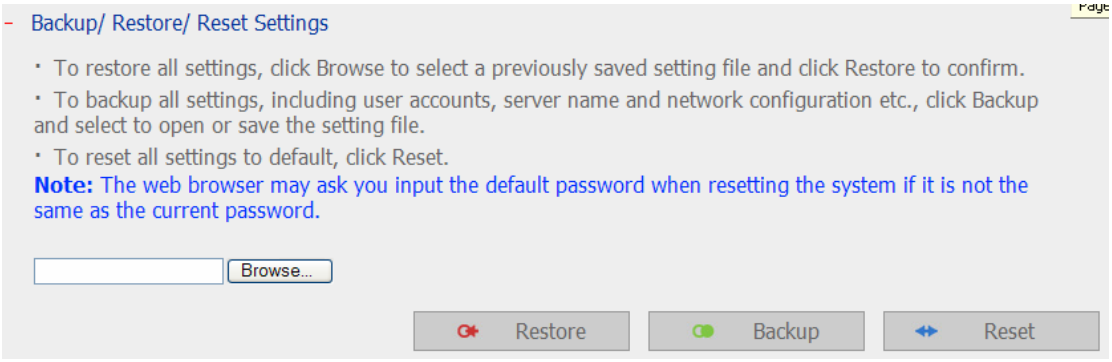
1. Download the release notes of the same version as the firmware from QNAP website http://www.qnap.com/. Read the release notes carefully to make sure you need to upgrade the firmware.
2. Before upgrading system firmware, back up all disk data on the server to avoid any potential data loss during system update.
3. Click the [**Browse...**] button to select the correct firmware image for system update. Click **Update System** to update the firmware.

System update may take several minutes to complete depending on the network connection status. Please wait patiently. The system will inform you when system update is completed.

When performing system update, please make sure the power supply is at steady state. Failed to do so may cause the system unable to start up.

**Note:** If the system is running properly, you do not need to update the firmware. QNAP is not responsible for any forms of data loss caused by improper or illegal system update.

### 5.7.5 Backup/ Restore/ Reset Settings

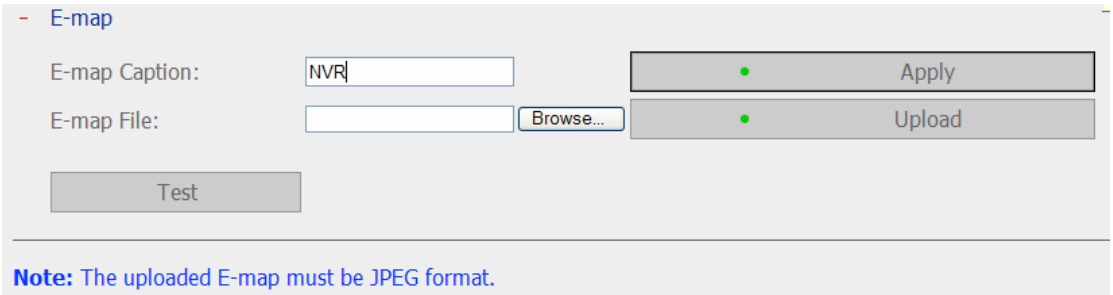

Backup/ Restore/ Reset Settings
• To restore all settings, click Browse to select a previously saved setting file and click Restore to confirm.
• To backup all settings, including user accounts, server name and network configuration etc., click Backup and select to open or save the setting file.
• To reset all settings to default, click Reset.
Note: The web browser may ask you input the default password when resetting the system if it is not the same as the current password.
Browse...
Restore
Backup
Reset

- To backup all settings, including user accounts, server name and network configuration etc., click **Backup** and select to open or save the setting file.
- To restore all settings, click **Browse...** to select a previously saved setting file and click **Restore** to confirm.
- To reset all settings to default, click **Reset**. All data on the disk(s) will be deleted.

### 5.7.6 E-map

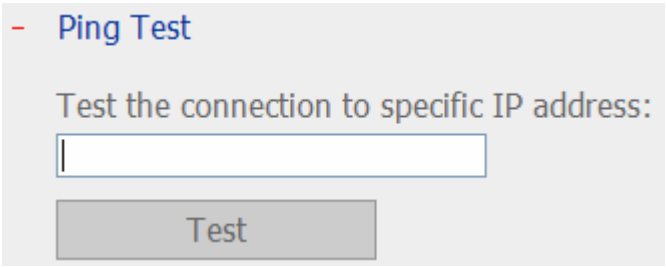
You can upload an E-map to NVR to illustrate the location of the cameras.

1. To upload an E-map, click **Browse...** and select the E-map file. Then click **Upload**.
2. You can change the caption for the E-map and click **Apply**.
3. After uploading the E-map, click **Test** to view the map.



### 5.7.7 Ping Test

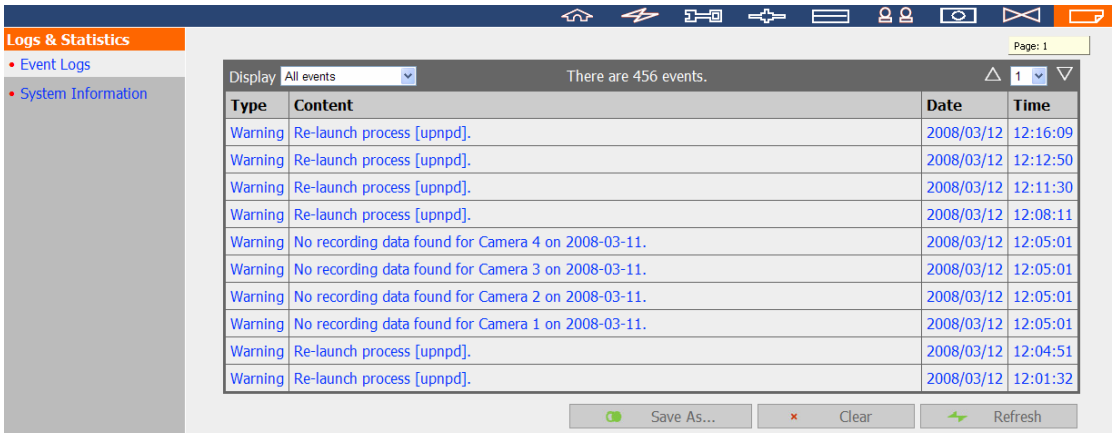
To test the connection to a specific IP address, enter the IP address and click **Test**.



## 5.8 Logs & Statistics

### 5.8.1 Event Logs

The server can store thousands of recent event logs, including warning, error, and information messages. In case of system malfunction, event logs (only in English) can be retrieved to analyze system problems.


Logs & Statistics
• Event Logs
• System Information
Page: 1
Display All events
There are 456 events.
1
Type Content Date Time
Warning Re-launch process [upnpd]. 2008/03/12 12:16:09
Warning Re-launch process [upnpd]. 2008/03/12 12:12:50
Warning Re-launch process [upnpd]. 2008/03/12 12:11:30
Warning Re-launch process [upnpd]. 2008/03/12 12:08:11
Warning No recording data found for Camera 4 on 2008-03-11. 2008/03/12 12:05:01
Warning No recording data found for Camera 3 on 2008-03-11. 2008/03/12 12:05:01
Warning No recording data found for Camera 2 on 2008-03-11. 2008/03/12 12:05:01
Warning No recording data found for Camera 1 on 2008-03-11. 2008/03/12 12:05:01
Warning Re-launch process [upnpd]. 2008/03/12 12:04:51
Warning Re-launch process [upnpd]. 2008/03/12 12:01:32
Save As...
Clear
Refresh

### 5.8.2 System Information

This page shows the current system status for diagnosis.

- System Information

| | | | | | | |
|---|---|---|---|---|---|---|
| **Processor** | | | | | | |
| CPU Usage | 0 % | | | | | |
| **Memory** | | | | | | |
| Total Memory | 122.9 | MB | | | | |
| Free Memory | 38.1 | MB | | | | |
| **Disk** | | | | | | |
| Disk Number | 1 | | | | | |
| Total Space | 457.6 | GB | | | | |
| Free Space | 70.9 | GB | | | | |
| **Network** | | | | | | |
| Packets Received | 4789 | | | | | |
| Packets Sent | 4789 | | | | | |
| Error Packets | 0 | | | | | |
| **Misc.** | | | | | | |
| System Up Time | 0 | Day(s) | 0 | Hour(s) | 39 | Minute(s) |

# Chapter 6 System Maintenance

This section provides a general overview on system maintenance.

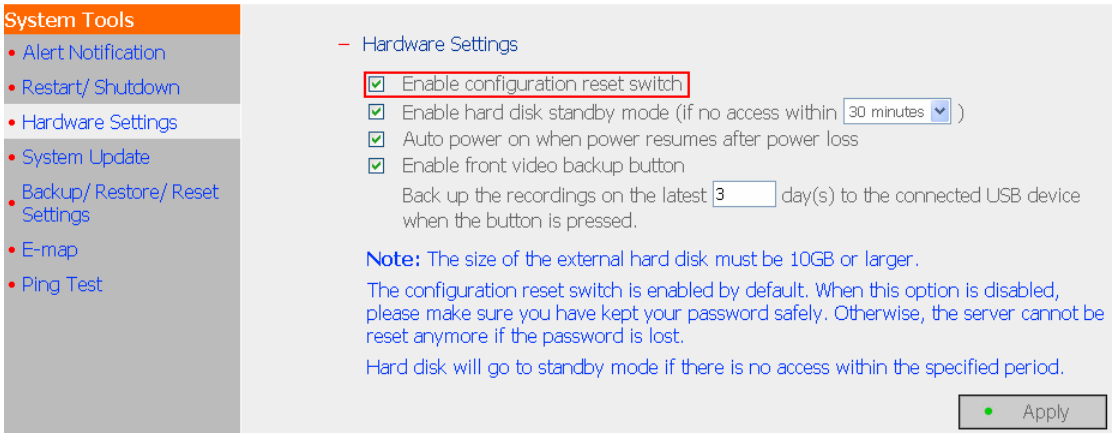
## 6.1 Reset Administrator Password and Network Settings

To reset the administrator password and network settings, press the reset button of the server for five seconds. A beep sound will be heard.

After resetting the system, you can login the server with the default user name and password:

| |
|---|
| Default user name: **administrator**<br>Password: **admin** |

**Note:** To reset the system by the reset button, the option "**Enable configuration reset switch**" in Hardware Settings must be activated.


System Tools
Alert Notification
Restart/ Shutdown
Hardware Settings
System Update
Backup/ Restore/ Reset Settings
E-map
Ping Test
Hardware Settings
Enable configuration reset switch
Enable hard disk standby mode (if no access within 30 minutes )
Auto power on when power resumes after power loss
Enable front video backup button
Back up the recordings on the latest 3 day(s) to the connected USB device when the button is pressed.
Note: The size of the external hard disk must be 10GB or larger.
The configuration reset switch is enabled by default. When this option is disabled, please make sure you have kept your password safely. Otherwise, the server cannot be reset anymore if the password is lost.
Hard disk will go to standby mode if there is no access within the specified period.
Apply

## 6.2 Power Outage or Abnormal Shutdown

In case of power outage or improper shutdown of the server, the server will resume to the state before it is shut down. If your server does not function properly after restart, please do the following:

1. If the system configuration is lost, configure the system again.
2. In the event of abnormal operation of the server, contact customer service for technical support.

To avoid the above situations, please back up your data periodically and make sure you have done the following:

- Follow the instructions described in Chapter 5.7.2 to restart or shut down the server.
- If there is an anticipated power outage, back up all important data and turn off the server properly until power supply is resumed.

## 6.3 Mirrored Disk Hot Swapping

NVR supports hot swapping. When a hard disk of RAID-1 mirroring disk volume fails, the failed disk can be replaced by a new one immediately without shutting down the system, and the recording data can be reserved. However, if the hard disks are working properly and recording is in process, do not hot swap the disks to avoid damage to the disks or recording files.

# Chapter 7 Troubleshooting

**1. The monitoring screen did not display.**

Please check the following:

A. Check if you have installed ActiveX when logging in the monitoring page. Set the security level to "Medium" or lower in Internet Options of IE browser.

B. Make sure NVR is turned on and the network is correctly connected.

C. The IP address of NVR does not conflict with other devices in the same subnet.

D. Check the IP address settings of NVR and your computer. Make sure they are in the same subnet.

**2. In the monitoring page, unable to view live video on one of the cameras.**

Please check the following:

A. The IP address, name, and password entered in the camera configuration page are correct. You can use the **Test** function to verify the connection.

B. When the PC and the network camera are in the same subnet, while NVR is in another one, you cannot view the monitoring screen from the PC. You can solve the problems by the following methods:
Method 1: Enter the IP address of the network camera as the WAN IP in NVR.
Method 2: Configure the router to allow internal access to the public IP address and the mapped ports of the network cameras.

**3. I cannot login the administration page.**

Please check if you have the administrator authority. Only administrators are allowed to login NVR.

**4. The live video is not clear or smooth sometimes.**

A. The image quality may be restricted and interfered by the actual network traffic.

B. When there are multiple accesses to the camera or the NVR server, the image quality will be reduced. And it is recommended to have three

simultaneous connections to the monitoring page at maximum. For better recording performance, please do not open too many IE browsers to view the live video.

C. The same camera may be shared by multiple NVRs for recording at the same time. Please use dedicated cameras.

**5. The alarm recording does not function.**

A. Please login the administration page and go to Camera Settings-Alarm Settings. Make sure alarm recording is enabled for the camera.

B. If NVR is installed behind a router while the network camera is not, alarm recording will not work.

C. When alarm recording is enabled, make sure you have configured the number of days that alarm recordings will be retained in Camera Settings-Advanced Settings. Otherwise, the recordings may be overwritten.

**6. The estimated storage space for recording displayed in Recording Settings page is different from the actual value.**

This estimated value is for reference only. The actual disk space may vary according to the image contents, network environment, and the performance of the cameras.

**7. The E-map cannot be displayed correctly.**

Please check the file format. NVR supports E-map in JPEG only.

**8. I cannot find my NVR in Finder.**

A. Check if NVR is turned on.

B. Check the network connection of the computer and NVR.

C. Refresh Finder and check the IP address of NVR. Make sure you have turned off all firewall software on your computer.

**9. The changes to the system configurations cannot take effect.**

After changing the settings in administration page, click the Apply button to apply the changes.

**10. The monitoring page cannot be fully displayed in Internet Explorer.**

If you are using the zooming function of Internet Explorer 7, the page may not be displayed properly. Please click F5 to refresh the page.

**11. I cannot use the SMB, FTP, and Web File Manager of NVR.**

A. Please go to Network Settings-File Services page and check if these three functions are enabled.

B. When NVR is installed behind a router and the access to NVR is outside the router, you will not be able to use SMB and FTP services. Please refer to Appendix F for details.

**12. The server takes too long to restart.**

When the server has been restarting for more than 5 minutes, please turn off the power and turn on the server again. If the problem persists, please contact the technical support.

**13. How to enlarge my storage capacity by eSATA in NVR-101?**

**Warning:** After the following setting, your original disk would be formatted. To backup current video recordings, please refer to Chapter 5.7.3 for front video backup button details.

A. Connect an eSATA disk to the eSATA port.

B. Go to Device Configuration in system administration page.

C. You can create the following disk volumes: RAID 1 Mirroring Disk Volume, RAID 0 Striping Disk Volume or Linear Disk Volume.

**Note:** Your eSATA disk will be shown as drive 2.

# Appendix A  Hard Disk Compatibility List

The following hard disk models are verified by QNAP that are compatible with NVR. It is recommended to use the disk models listed here.  Other hard disk models that are not tested by QNAP may or may not work properly with NVR.  For more updated compatible hard disk information, please visit QNAP website at http://www.qnap.com/.

**Note:** QNAP disclaims any responsibility for product damage/ malfunction or data loss/ recovery due to misuse or improper installation of hard disks in any occasions for any reasons.

| Brand | Product Family | Model | Interface | RPM | Drive size (GB) | Buffer Size (MB) |
|---|---|---|---|---|---|---|
| Hitachi | Deskstar 7K1000 | HDS721010KLA330 | SATA II | 7200 | 1000 | 32 |
| Hitachi | Deskstar 7K1000 | HDS721075KLA330 | SATA II | 7200 | 750 | 32 |
| Hitachi | Deskstar E7K500 | HDS725050KLA360 | SATA II | 7200 | 500 | 16 |
| Hitachi | Deskstar T7K500 | HDT725025VLA380 | SATA II | 7200 | 250 | 8 |
| Hitachi | Deskstar 7K400 | HDS724040KLSA80 | SATA | 7200 | 400 | 8 |
| Hitachi | Deskstar 7K250 | HDS722525VLSA80 | SATA | 7200 | 250 | 8 |
| Maxtor | QuickView | 3H500F0 | SATA II | 7200 | 500 | 16 |
| Maxtor | QuickView | 3H400F0 | SATA II | 7200 | 400 | 16 |
| Maxtor | DiamondMax 10 | 6L300S0 | SATA | 7200 | 300 | 16 |
| Maxtor | DiamondMax 10 | 6B300S0 | SATA | 7200 | 300 | 16 |
| Maxtor | MaxLine Plus II | 7Y250M0 | SATA | 7200 | 250 | 8 |
| Seagate | Barracuda ES | ST31000340AS | SATA II | 7200 | 1000 | 16 |
| Seagate | Barracuda 7200.10 | ST3750640AS | SATA II | 7200 | 750 | 16 |
| Seagate | Barracuda 7200.10 | ST3320620AS | SATA II | 7200 | 320 | 16 |
| Seagate | Barracuda 7200.10 | ST3250620AS | SATA II | 7200 | 250 | 16 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Seagate | Barracuda 7200.9 | ST3500641AS | SATA II | 7200 | 500 | 16 |
| Seagate | Barracuda 7200.9 | ST3400633AS | SATA II | 7200 | 400 | 16 |
| Seagate | Barracuda 7200.9 | ST3300622AS | SATA II | 7200 | 300 | 16 |
| Seagate | Barracuda 7200.9 | ST3250824AS | SATA II | 7200 | 250 | 8 |
| Seagate | Barracuda 7200.8 | ST3400832AS | SATA | 7200 | 400 | 8 |
| Seagate | Barracuda 7200.8 | ST3250823AS | SATA | 7200 | 250 | 8 |
| Seagate | Barracuda 7200.7 | ST3160827AS | SATA | 7200 | 160 | 8 |
| Seagate | Barracuda 7200.7 | ST3120827AS | SATA | 7200 | 120 | 8 |
| WD | WD Caviar GP | WD10EACS | SATA II | 7200 | 1000 | 16 |
| WD | WD Caviar SE16 | WD5000KS | SATA II | 7200 | 500 | 16 |
| WD | WD Caviar SE16 | WD4000KS | SATA II | 7200 | 400 | 16 |
| WD | WD Caviar SE16 | WD3200KS | SATA II | 7200 | 320 | 16 |
| WD | WD Caviar SE16 | WD2500KS | SATA II | 7200 | 250 | 16 |
| WD | WD Caviar SE | WD2500JS | SATA II | 7200 | 250 | 8 |
| WD | WD Caviar SE | WD2000JS | SATA II | 7200 | 200 | 8 |
| WD | WD Caviar SE | WD1600JS | SATA II | 7200 | 160 | 8 |
| WD | WD Caviar SE | WD1200JS | SATA II | 7200 | 120 | 8 |
| WD | WD Caviar SE16 | WD4000KD | SATA | 7200 | 400 | 16 |
| WD | WD Caviar SE16 | WD2500KD | SATA | 7200 | 250 | 16 |
| WD | WD Caviar RE2 | WD4000YR | SATA | 7200 | 200 | 16 |
| WD | WD Caviar SE | WD1600JD | SATA | 7200 | 160 | 8 |

# Appendix B  LED Indication

NVR provides LED indicators for you to indicate system status and information easily.

1. USB Status
2. System Status
3. HDD
4. eSATA HDD
5. LAN
6. Power

When the system is turned on, you will see the following LED indication:

1. The power LED will become blue; the system LED will blink in red.
2. A few seconds later, you will hear a short beep sound, and the system LED will blink in green.
3. Wait for about one minute.  You will hear another beep sound.  The system has started.

**LED Display & System Status Overview**

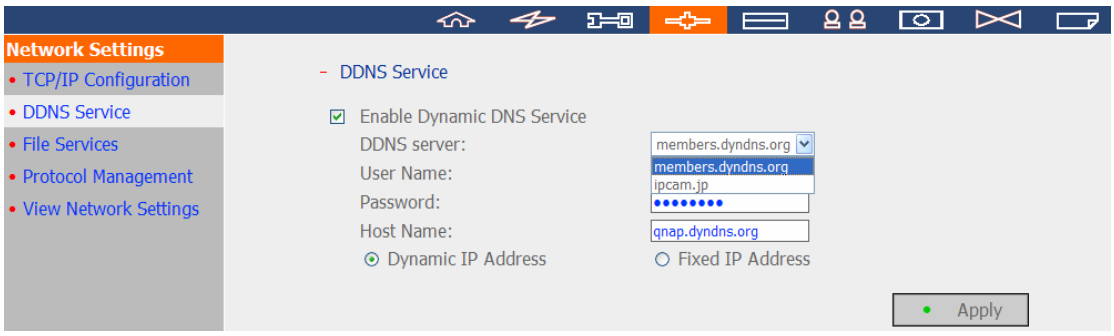
| LED | LED Display & System Status |
|---|---|
| Power | Blue: Power is on |
| LAN | Blink in orange when accessing network |
| HDD1/eSATA | Blink in orange when accessing the disk(s) |
| System Status | Green: System is started and ready |
| | Blink in green: No hard disk is detected. |
| | Blink in green for 5 seconds, then blink in green and red alternatively: Hard disk not initialized |
| | Blink in red: Bad blocks are found in hard disk |
| | Blink in red: Disk full |
| USB Status | Blue: You can press the backup button to back up video.<br>Blink in blue: Backing up video |

| Other Status | | | |
|---|---|---|---|
| **Action** | **LED** | **In Process** | **Finished** |
| Update firmware | Power | Blink in blue | Blue |
| | System Status | Blink in green and red alternatively | Green<br>(long beep thrice) |
| System shut down | Power | Blink in blue | Off |
| | System Status | Off with a short beep | Off |
| HDD standby mode | System Status | Off | |
| RAID 1 degraded mode | System Status | Red<br>(long beep twice) | Off |
| RAID 1 rebuilding | System Status | Blink in red (long beep twice) | Green |

# Appendix C Dynamic Domain Name Registration

NVR supports DDNS service provided by DynDNS. You can go to DynDNS website http://www.dyndns.org/ to register a dynamic domain name.

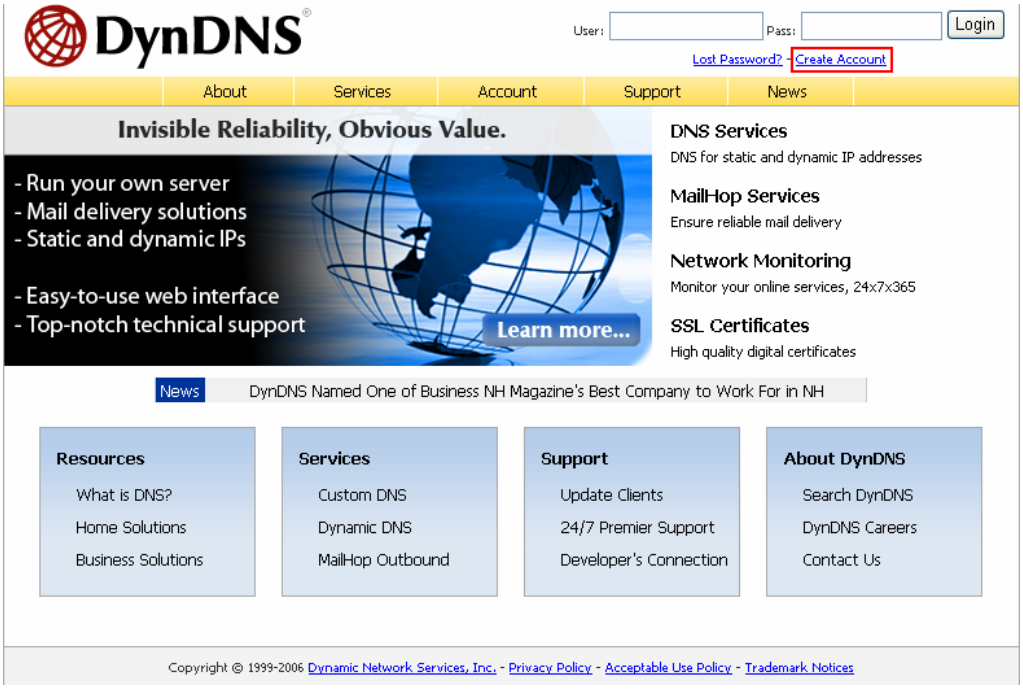
Configure and activate DDNS service to enable the Internet users to access your NVR via this dynamic domain name. When the ISP assigns a new WAN IP address, NVR will update the new address to the DynDNS server automatically.



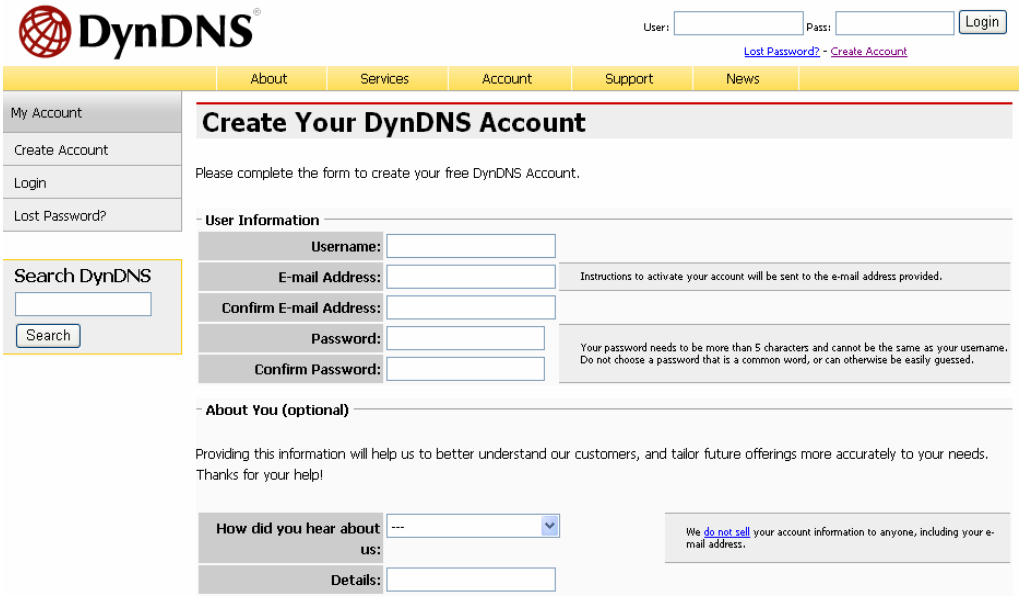
**Registration Procedure**

Please follow the steps below to register a dynamic domain name. This guide is for reference only. If there are any changes, please refer to the instructions or documents on the web site.

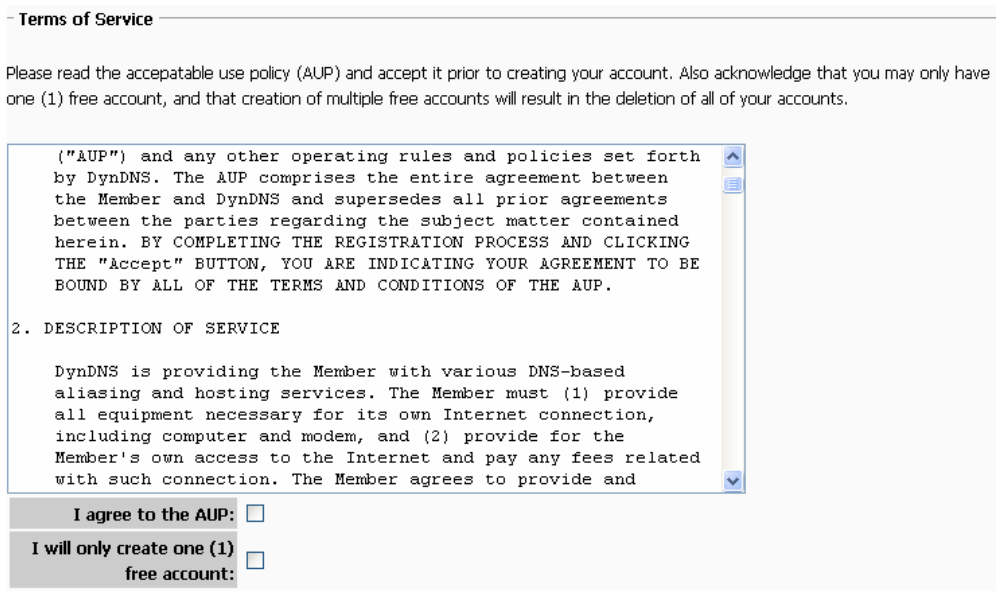
1. Open the browser and connect to http://www.dyndns.com/. Click **Create Account** to begin registration.



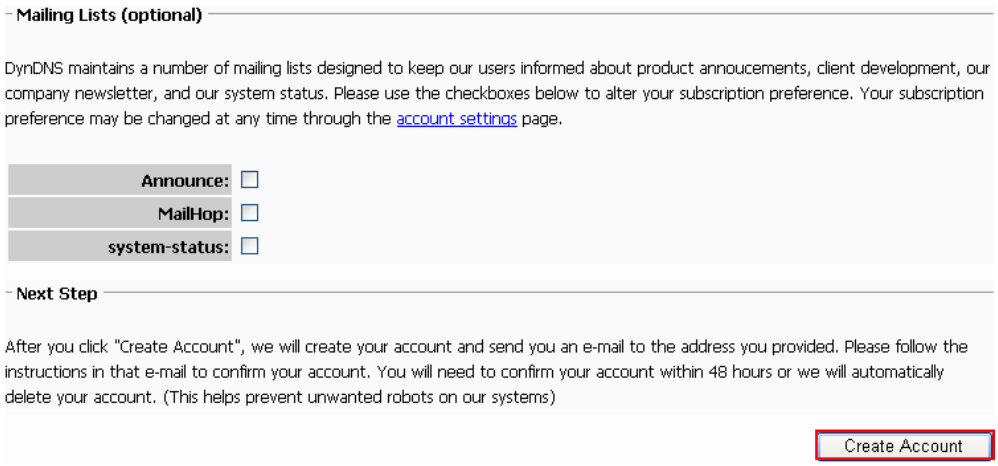
2. Enter the user name, email address, and password to create an account for DDNS service. Please verify your email address to receive the confirmation message from the server.


DynDNS
User:
Pass:
Login
Lost Password? - Create Account
About
Services
Account
Support
News
My Account
Create Account
Login
Lost Password?
Search DynDNS
Search
Create Your DynDNS Account
Please complete the form to create your free DynDNS Account.
User Information
Username:
E-mail Address:
Instructions to activate your account will be sent to the e-mail address provided.
Confirm E-mail Address:
Password:
Your password needs to be more than 5 characters and cannot be the same as your username. Do not choose a password that is a common word, or can otherwise be easily guessed.
Confirm Password:
About You (optional)
Providing this information will help us to better understand our customers, and tailor future offerings more accurately to your needs. Thanks for your help!
How did you hear about us:
---
We do not sell your account information to anyone, including your e-mail address.
Details:

3. Select to accept the terms of service.


Terms of Service
Please read the accepatable use policy (AUP) and accept it prior to creating your account. Also acknowledge that you may only have one (1) free account, and that creation of multiple free accounts will result in the deletion of all of your accounts.
("AUP") and any other operating rules and policies set forth by DynDNS. The AUP comprises the entire agreement between the Member and DynDNS and supersedes all prior agreements between the parties regarding the subject matter contained herein. BY COMPLETING THE REGISTRATION PROCESS AND CLICKING THE "Accept" BUTTON, YOU ARE INDICATING YOUR AGREEMENT TO BE BOUND BY ALL OF THE TERMS AND CONDITIONS OF THE AUP.
2. DESCRIPTION OF SERVICE
DynDNS is providing the Member with various DNS-based aliasing and hosting services. The Member must (1) provide all equipment necessary for its own Internet connection, including computer and modem, and (2) provide for the Member's own access to the Internet and pay any fees related with such connection. The Member agrees to provide and
I agree to the AUP:
I will only create one (1) free account:

4. Configure the mailing lists if necessary. Then click **Create Account**.


Mailing Lists (optional)
DynDNS maintains a number of mailing lists designed to keep our users informed about product annoucements, client development, our company newsletter, and our system status. Please use the checkboxes below to alter your subscription preference. Your subscription preference may be changed at any time through the account settings page.
Announce:
MailHop:
system-status:
Next Step
After you click "Create Account", we will create your account and send you an e-mail to the address you provided. Please follow the instructions in that e-mail to confirm your account. You will need to confirm your account within 48 hours or we will automatically delete your account. (This helps prevent unwanted robots on our systems)
Create Account

5. When your account is successfully created, a confirmation message will be sent to your e-mail address. Please follow the instructions in the e-mail to activate your account within 48 hours. When you have finished the confirmation process, you can apply for your own dynamic domain name. Please refer to the website of the DDNS provider for more information.

# Appendix D  Product Specifications

## Software Specification

| Video | |
|---|---|
| Display Mode | Single, quad, Picture-in-Picture, Sequential mode |
| Recording Cameras | Up to 4 |
| Compression Format | Motion JPEG/ MPEG 4 (depend on IP Camera) |
| Video Setting | Resolution, Quality, Frame Rate |
| E-map | Upload E-map |
| **Recording** | |
| Recording Mode | Continuous, manual, scheduled, alarm, motion, snapshot |
| Buffer Storage for Alarm Images (before and after events) | Pre-recording: 300 Seconds/ Post–recording :300 Seconds (Total 600 Seconds/ 10 Minutes) |
| Recording Performance | Up to 120 frames at QVGA (320x240) or CIF (352x240 in NTSC, 352x 288 in PAL)/ Up to 40 frames at VGA (640x480)<br>* Real performance may vary in different environment |
| File Format | AVI (Recordings can be played by Windows Media Player) |
| **Playback** | |
| Playback Mode | Play, pause, stop, fast forward, full screen display |
| Video Search | Search by date, time |
| Video Player | Immediate playback by default video player |
| Download | Click to download recorded files from web page |
| **Storage** | |
| Disk Mode | Single, RAID 0, RAID 1, Linear |
| Capacity | Support 1 x 3.5" SATA I/II HDD, up to 1TB or above, expandable to 2TB via eSATA |
| Services | Web File Manager, FTP, SMB/CIFS |
| **Network** | |
| Support | HTTP, TCP/IP, SMTP, DHCP, Static IP, DNS, DDNS, FTP, NTP, UPnP |
| Camera IP Address & Port | Allow setting LAN/WAN IP address of each camera |
| **Utility Software** | |
| Finder | Discovery and quick setup |
| **Security** | |
| Operation System | Linux embedded, free from PC crash and virus attack |
| User Management | The right to monitor and playback each camera can be separately defined for each individual user (up to 32 users) |
| Alert Notification | E-mail, buzzer, event logs |
| UPS | Support APC (USB type of UPS) |
| Event Log | Detailed record of all events |

| Client PC Requirement | |
|---|---|
| CPU | Pentium 4 CPU 2 GHz or higher |
| Memory | 512 MB or above |
| Operation System | Windows XP or later |
| Browser | Internet Explorer 6.0 or later |
| Network Interface | 10/100 Mbps or above |
| View Resolution | Suggest 1024 X 768 pixel or above |
| Language Support | |
| English/ Japanese/ French/ Italian/ German/ Spanish/ Simplified Chinese/ Traditional Chinese/ Dutch | |
| Certification | |
| CE , FCC , VCCI, BSMI | |

## Hardware Specification

| | |
|---|---|
| **HDD** | Support 1 x 3.5" SATA I/II HDD, up to 1TB or above, expandable to 2TB via eSATA<br>(the standard system is shipped without HDD) |
| **LAN Port** | 1 x Gigabit RJ-45 Ethernet port |
| **LED Indicators** | Power, USB status, System status, LAN, hard disk |
| **USB** | 3 x USB; for USB storage device for one touch auto-video backup and UPS device |
| **Buttons** | USB auto-video backup button, power button, reset button |
| **Form Factor** | Portable desktop |
| **Dimensions** | 218.4(D) x 60(W) x 165.5 (H) mm |
| **Weight** | Net weight: 0.71 Kg (without HDD)<br>Gross weight: 1.57 Kg (without HDD) |
| **Temperature** | 0~35°C |
| **Humidity** | 0%~85% R.H. |
| **Power Supply** | 36W, 100~240V |
| **Secure Design** | K-Lock Security Slot for Theft Prevention, Power cord hook for kicking-off prevention |

*Designs and specifications are subject to change without notice. Please contact QNAP for updated information.

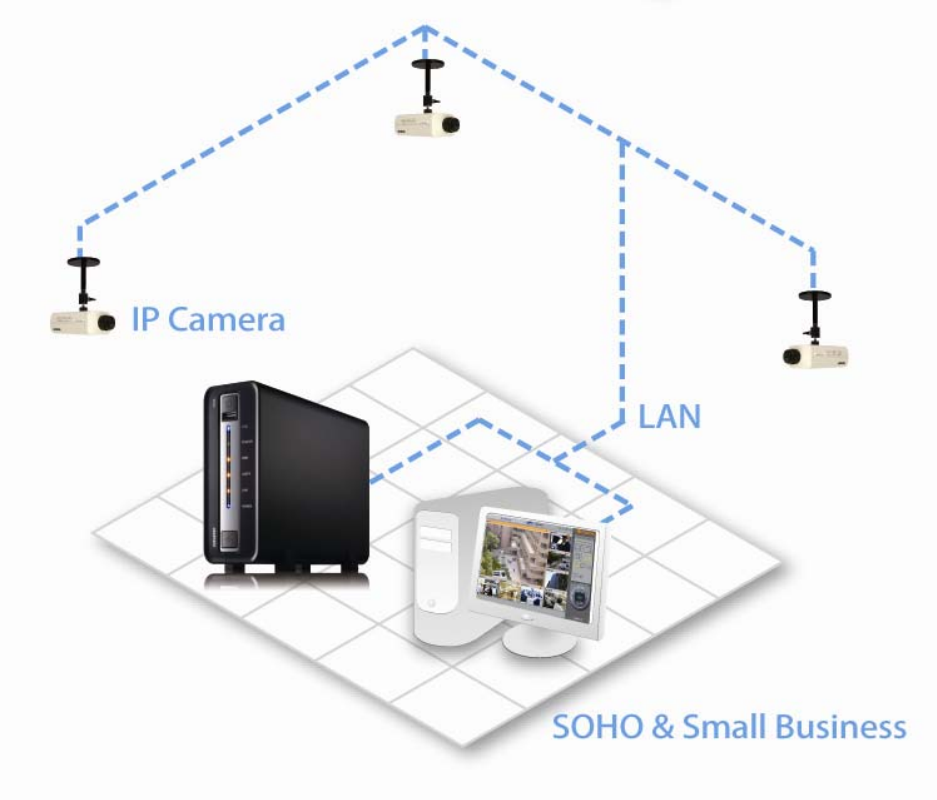
# Appendix E Network Camera Compatibility List

| | |
|---|---|
| **Vivotek Network Camera** | IP3112/ IP3122 |
| | IP3111/ IP3121 |
| | IP3132 |
| | IP3135/ IP3137 |
| | PT3112/ PT3122 |
| | PT3117/ PT3127 |
| | IP7135/IP7137 |
| | IP7131/IP7132 |
| | PT7135/PT7137 |
| **AXIS Network Camera** | AXIS 206 |
| | AXIS 207 |
| | AXIS 207W |
| **D-Link Network Camera** | DCS-6620(G) |
| | DCS-5300(G |
| | DCS-5220 |
| | DCS-3420 |
| | DCS-3220(G) |
| | DCS-2120 |
| | DCS-900 |
| **LevelOne** | FCS-1010/WCS-2010 |
| | FCS-1040/WCS-2040 |
| | FCS-1070/WCS-2070 |
| | FCS-3000 |
| | FCS-1060/WCF-2060 |
| | FCS-1030/WCS-2030 |
| | FCS-3021 |
| **Panasonic Network Camera** | BL-C30 |
| | BL-C10 |
| | BL-C131 |
| | BL-C111 |
| | BL-C20 |
| | BL-C1 |
| | BL-C11 |
| | BL-C31 |
| **IPUX Network Camera** | ICS1003 |
| | ICS1013 |
| **Linksys** | WVC54GCA |

*For the information of supported camera models, please visit QNAP website at http://www.qnap.com/.

# Appendix F Configuration Examples

**Environment 1: NVR, IP Camera and monitoring PC are all in the same network**

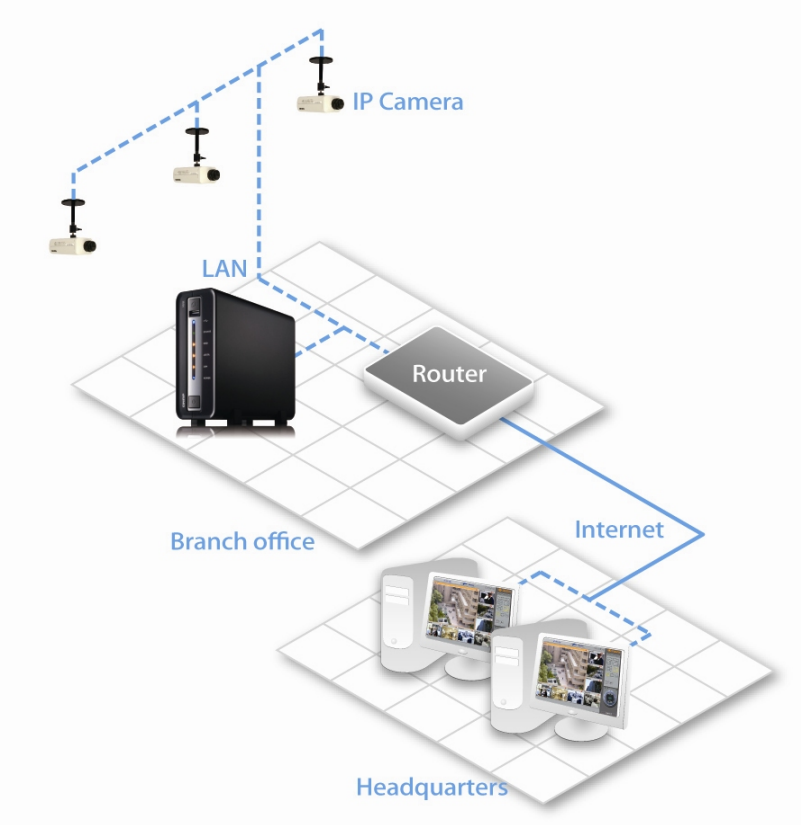



Network Surveillance Installation for SOHO and SMB

| | **IP Address** |
|---|---|
| NVR | *192.168.1.1* |
| PC | *192.168.1.100* |
| Camera 1 | *192.168.1.101* |
| Camera 2 | *192.168.1.102* |
| Camera 3 | *192.168.1.103* |

In the example, just add the camera to NVR by entering the cameras' IP address.

**Environment 2: NVR and IP camera are installed behind the router, while the monitoring PC is located remotely**




| | **IP Address** | **Mapped port in router** |
|---|---|---|
| NVR | *192.168.1.1* | *8000* |
| Camera 1 | *192.168.1.101* | *8001* |
| Camera 2 | *192.168.1.102* | *8002* |
| Camera 3 | *192.168.1.103* | *8003* |
| Router public IP | *219.87.144.205* | |
| PC | *10.8.10.100* | |

In this example, to allow a remote PC to connect to NVR and the cameras, you need to:

Step 1. Set up port mapping (virtual server) on the router.

| From | Forward to |
|---|---|
| *219.87.144.205:8000* | *192.168.1.1:80* |
| *219.87.144.205:8001* | *192.168.1.101:80* |
| *219.87.144.205:8002* | *192.168.1.102:80* |
| *219.87.144.205:8003* | *192.168.1.103:80* |

Step 2. Add camera to NVR by entering the IP address of the camera in the "IP Address" settings, and the public IP address of the router and the mapped ports of the camera to the "WAN IP Address" settings.

**Note:** When configuring the network camera, WAN IP and LAN IP must be entered.

To open FTP (port 21) and SMB (port 445) of NVR on WAN, you have to set the following port mapping settings:

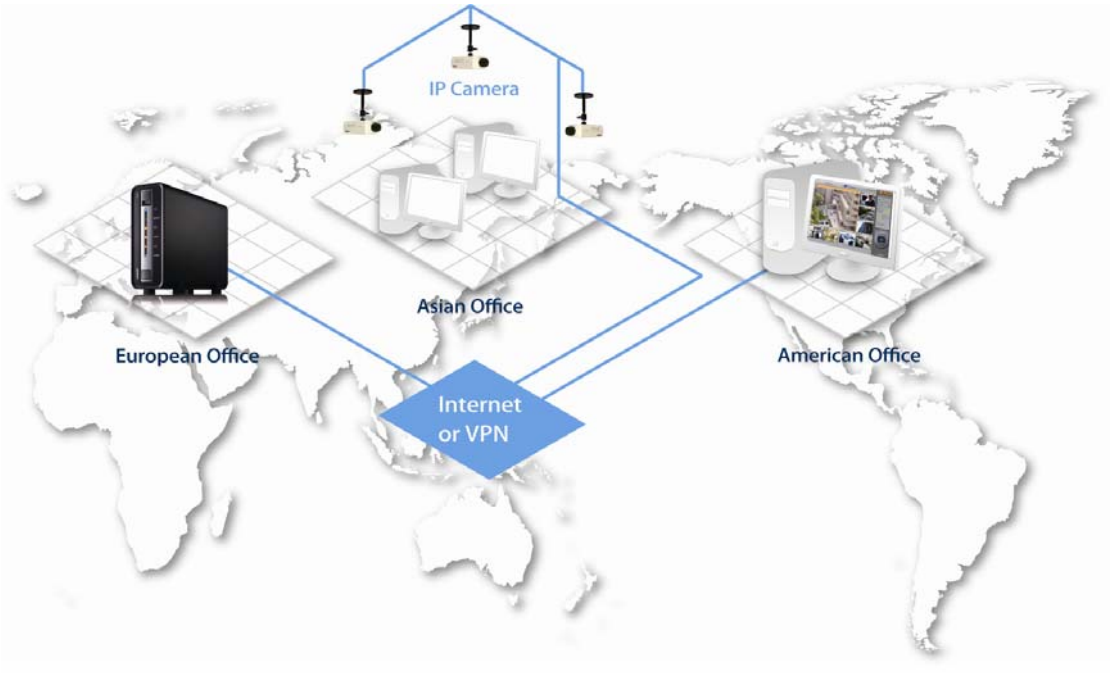
| From | Forward to |
|---|---|
| *219.87.144.205:21* | *192.168.1.1:21* |
| *219.87.144.205:139* | *192.168.1.1:139* |
| *219.87.144.205:445* | *192.168.1.1:445* |

After finishing the above two steps, you can access NVR via WAN by entering the IP address http://219.87.144.205:8000 in the IE browser. Then login NVR via the correct user name and password.

If the port specified to NVR is 80, you can enter http://219.87.144.205 to access NVR as the default port of HTTP is 80.

**Note:** If the router does not use a fixed IP, you will need to configure DDNS on the router. Other configurations are the same as above.

**Environment 3: NVR and IP camera are all located remotely**




| | **IP Address** |
|---|---|
| NVR | *219.87.144.205* |
| Camera 1 | *61.62.100.101* |
| Camera 2 | *61.62.100.102* |
| Camera 3 | *61.62.100.103* |

In this example, just add the camera to NVR by adding its IP address to the "IP Address" settings.

**Note:** If there is a particular port for connecting the camera, please specify the port in NVR configuration.

**Environment 4: NVR and IP camera are installed behind the router**

| | **IP Address** |
|---|---|
| NVR 1 | 192.168.1.101 |
| NVR 2 | 192.168.1.102 |
| NVR 3 | 192.168.1.103 |
| Router public IP | 219.87.145.205 |

In the example, to allow a PC which is located remotely to access each NVR via FTP, you need to:

Step 1. Set up port mapping (virtual server) on the router

| | **From** | **Forward to** |
|---|---|---|
| NVR 1 | 219.87.145.205:2001 | 192.168.1.101:21 |
| NVR 2 | 219.87.145.205:2002 | 192.168.1.102:21 |
| NVR 3 | 219.87.145.205:2003 | 192.168.1.103:21 |

You could directly connect NVR 1 via FTP by ftp://219.87.145.205:2001
You could directly connect NVR 2 via FTP by ftp://219.87.145.205:2002
You could directly connect NVR 3 via FTP by ftp://219.87.145.205:2003

Step 2. Enable FTP Port Mapping in NVR

If you want to connect each NVR via FTP by clicking

button in playback page of each NVR, you need to enable FTP port mapping in Network Settings > File Services > FTP Service on the system administration page and set the mapped port number.

| | **Mapped Port** |
|---|---|
| NVR 1 | 2001 |
| NVR 2 | 2002 |
| NVR 3 | 2003 |

After finishing the above two steps, you can access NVR via FTP by entering the IP address in the IE browser or clicking

button in playback page. Then login NVR via the correct user name and password.

# Technical Support

QNAP provides dedicated online support and customer service via instant messenger. You can contact us by the following means:

| |
|---|
| Online Support: http://www.qnap.com |
| E-mail: q_support@qnap.com |
| MSN: q.support@hotmail.com |
| SKYPE: qnapskype |